Service instructions

for contractors

Vitodens 333-F
Type WS3C
Compact gas fired condensing boiler
3.8 to 26 kW natural gas and LPG version

For applicability, see the last page

VITODENS 333-F

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Please keep safe.

Safety instructions

Please follow these safety instructions closely to prevent accidents and material losses.

Safety instructions explained

Danger
This symbol warns against the risk of injury.

Please note
This symbol warns against the risk of material losses and environmental pollution.

Note
Details identified by the word "Note" contain additional information.

Target group

These instructions are exclusively designed for qualified personnel.

- Work on gas equipment must only be carried out by a qualified gas fitter.
- Work on electrical equipment must only be carried out by a qualified electrician.
- The system must be commissioned by the system installer or a qualified person authorised by the installer.

Regulations

Observe the following when working on this system

- all legal instructions regarding the prevention of accidents,
- all legal instructions regarding environmental protection,
- the Code of Practice of relevant trade associations,
- all current safety regulations as defined by DIN, EN, DVGW, TRGI, TRF, VDE and all locally applicable standards.

If you smell gas

Danger
Escaping gas can lead to explosions which may result in serious injury.

- Never smoke. Prevent naked flames and sparks. Never switch lights or electrical appliances ON or OFF.
- Close the gas shut-off valve.
- Open windows and doors.
- Remove all people from the danger zone.
- Notify your gas or electricity supplier from outside the building.
- Shut off the electricity supply to the building from a safe place (outside the building).

If you smell flue gas

Danger
Flue gas can lead to life-threatening poisoning.

- Shut down the heating system.
- Ventilate the boiler room.
- Close all doors leading to the living space.

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Safety instructions (cont.)

Working on the system

- When using gas as fuel, also close the main gas shut-off valve and safeguard against unauthorised reopening.
- Isolate the system from the power supply and check that it is no longer 'live', e.g. by removing a separate fuse or by means of a main isolator.
- Safeguard the system against unauthorised reconnection.

Please note
Electronic modules can be damaged by electro-static discharges.
Touch earthed objects, such as heating or water pipes, to discharge static loads.

Repair work

Please note
Repairing components which fulfil a safety function can compromise the safe operation of your heating system.
Replace faulty components only with original Viessmann spare parts.

Ancillary components, spare and wearing parts

Please note
Spare and wearing parts which have not been tested together with the heating system can compromise its function. Installing non-authorised components and non-approved modifications/conversion can compromise safety and may invalidate our warranty.
For replacements, use only original spare parts from Viessmann or those which are approved by Viessmann.

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Steps - commissioning, inspection and maintenance

For further information regarding the individual steps, see the page indicated

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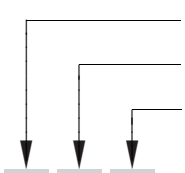
Steps - commissioning, inspection and . . . (cont.)



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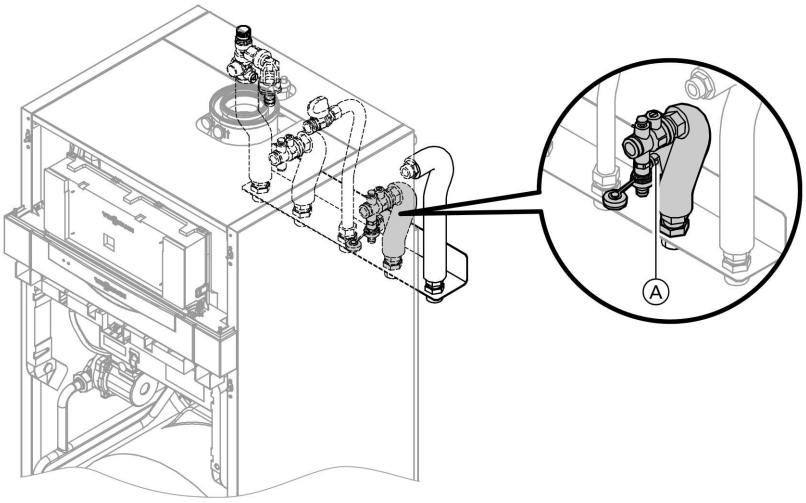
Further details regarding the individual steps

Filling the heating system

Please note
Unsuitable fill water increases the level of deposits and corrosion and may lead to boiler damage.
- Thoroughly flush the entire heating system prior to filling it with water.
- Only use fill water of potable quality.
- Soften fill water with hardness exceeding 3.0 mmol/l, e.g. use a small softening system for heating water (see Vitoset price list).
- An antifreeze additive suitable for heating systems can be mixed with the fill water.



1. Check the pre-charge pressure of the diaphragm expansion vessel.

2. Close the gas shut-off valve.

Further details regarding the individual steps (cont.)

3. Fill the heating system via the boiler fill & drain valve Ⓐ in the heating return (at the connection set or on site). (minimum system pressure > 1.0 bar).

Note
If the control unit has not been switched ON prior to filling the system, then the servomotor of the diverter valve will still be in its central position, and the system will be completely filled.

4. If the control unit had already been switched ON before filling began: Switch ON the control unit and activate the fill program via coding address "2F:2".

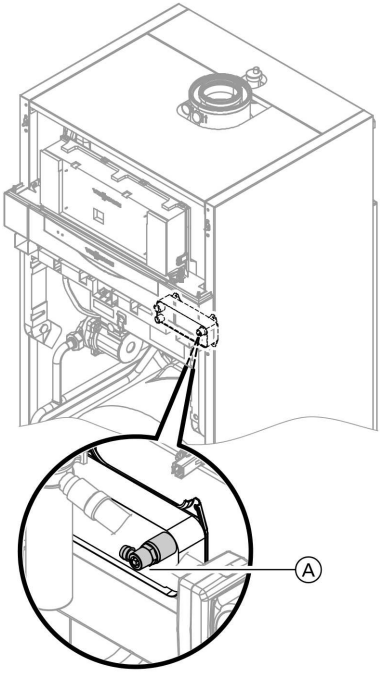
Note
To call up coding level 1 and for setting the coding address, see page 46.
For function and details of the fill program, see page 109.
Whilst the fill program is running, the display shows ***"bF"****, Vitotronic 100, or* ***"Befüllung"*** *(filling), Vitotronic 200.*

5. Close boiler fill & drain valve Ⓐ.

6. Set code "2F:0".

Further details regarding the individual steps (cont.)

Venting the boiler



1. Close the shut-off valves on the heating water side.
2. Connect the drain hose on valve Ⓐ with a drain.
3. Open valve Ⓐ and the fill valve in the heating return and vent using mains pressure (flush) until no more air noise can be heard.
4. Close valve Ⓐ and the fill valve in the heating return, and open the shut-off valves on the heating water side.

Venting the heating system

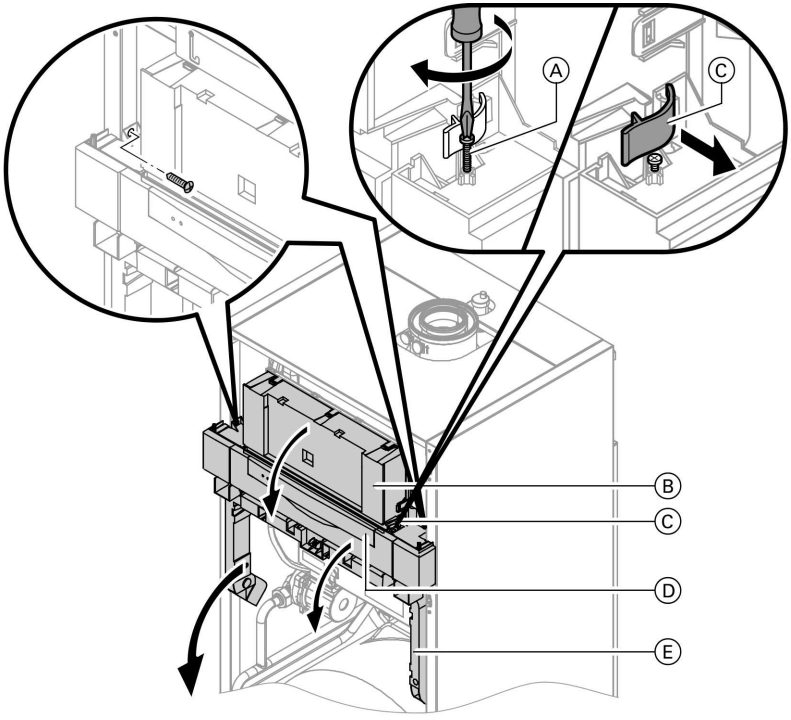
1. Close the gas shut-off valve and switch ON the control unit.
2. Activate the venting program via coding "2F:1".

   Note
   To call up coding level 1 and for setting the coding address, see page 46.
   For function and sequence of the venting program, see page 109.
   Whilst the venting program is running, the display shows ***"EL"*** *(Vitotronic 100) or* ***"Entlüftung"*** *(venting) (Vitotronic 200).*

Further details regarding the individual steps (cont.)

3. Check the system pressure.

Pivoting down the control unit for commissioning and maintenance work



1. Open flap Ⓓ.

2. Turn both screws Ⓐ down.

3. Release the side closures Ⓒ and pivot control unit Ⓑ forward.

4. Release the side screws and pivot control unit Ⓑ down with its retaining frame Ⓔ.

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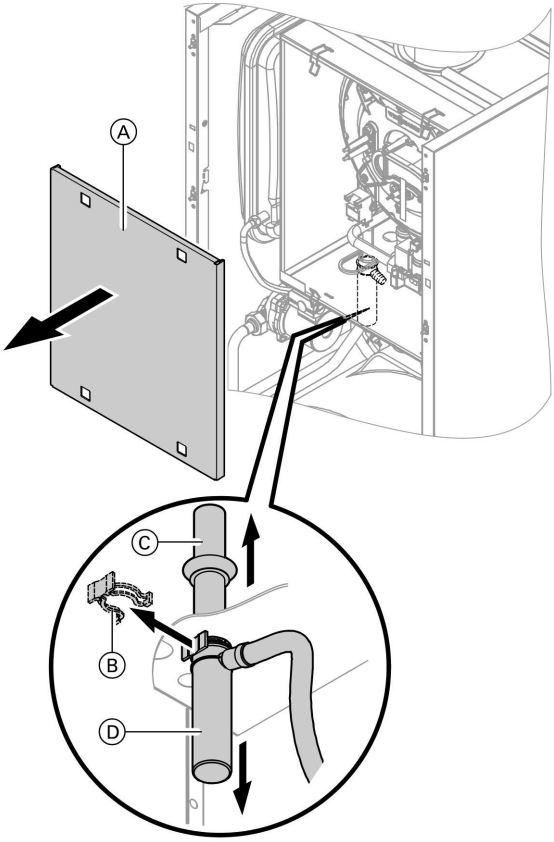
Further details regarding the individual steps (cont.)

Filling the siphon with water



1. Remove cap panel Ⓐ.
2. Pull retaining clip Ⓑ off.
3. Pull filler pipe Ⓒ upwards.
4. Pull off lute Ⓓ downwards.
5. Fill siphon with water and reassemble.
6. Pivot control unit with retaining frame up and secure with screws.

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Further details regarding the individual steps (cont.)

Setting the time and date (if required) – only for weather-compensated control units

Note

- *During commissioning, or after a prolonged time out of use, it may be necessary to reset the time and date, if the time flashes in the display.*
- *When the unit is first taken into operation the display is in German (default language setting):*

Time (see step 1)

Date (see step 2)

Press the following keys:

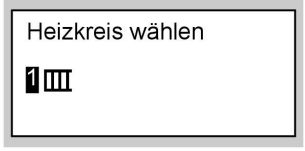
1. ⊕/⊖ for the current time.
2. OK to confirm; "**Datum**" is displayed.
3. ⊕/⊖ for the current date.
4. OK to confirm.

Selecting the language (if required) – only for weather-compensated control units

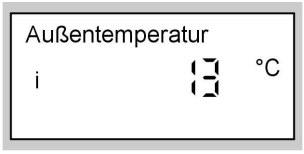
Note

When the unit is first taken into operation the display is in German (default language setting):

Select heating circuit (see step 1.)



Outside temperature (see step 3.)



Press the following keys:

1. i "**Heizkreis wählen**" (select heating circuit) is displayed.
2. OK to confirm; wait approx. 4 s.

Further details regarding the individual steps (cont.)

3. ⓘ press this button again, "**Außentemperatur**" (outside temperature) is displayed.
4. ⊖ for the required language.
5. OK to confirm.

Checking the gas type

The boiler is equipped with an electronic combustion control unit that adjusts the burner for optimum combustion in accordance with the prevailing gas quality.

- Consequently, for natural gas there is no adjustment required across the entire Wobbe range.
  The boiler can be operated in the Wobbe index range 10.0 to 16.1 kWh/m^3 (36.0 to 58.0 MJ/m^3).
- Convert the burner for operation with LPG (see "Gas type conversion" on page 15).

1. Determine the gas type and Wobbe index by asking your local gas supply utility or LPG supplier.
2. Convert the burner for operation with LPG (see page 15).
3. Record the gas type in the service report on page 129.

Wobbe index ranges

Gas type	Wobbe index range kWh/m^3	MJ/m^3
Delivered condition		
Natural gas E	12.0 to 16.1	43.2 to 58.0
or		
Natural gas LL	10.0 to 13.1	36.0 to 47.2
After conversion		
LPG P	20.3 to 21.3	72.9 to 76.8

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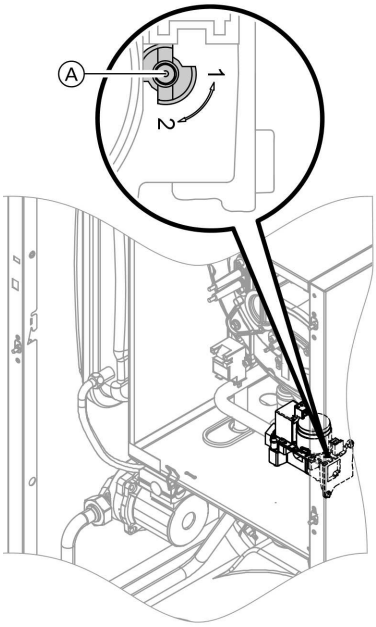
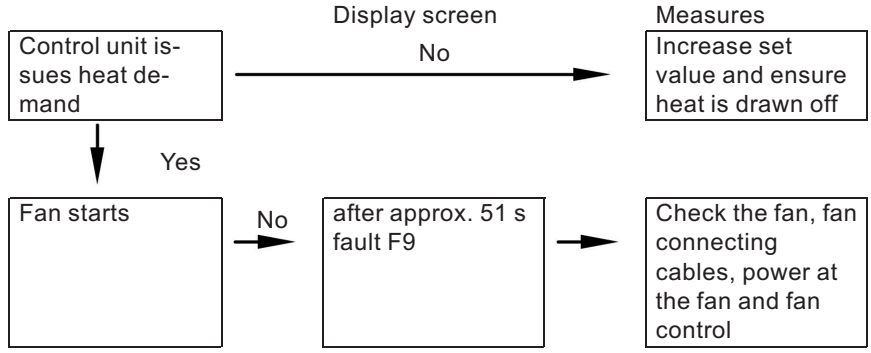
Further details regarding the individual steps (cont.)

Gas type conversion (only for operation with LPG)

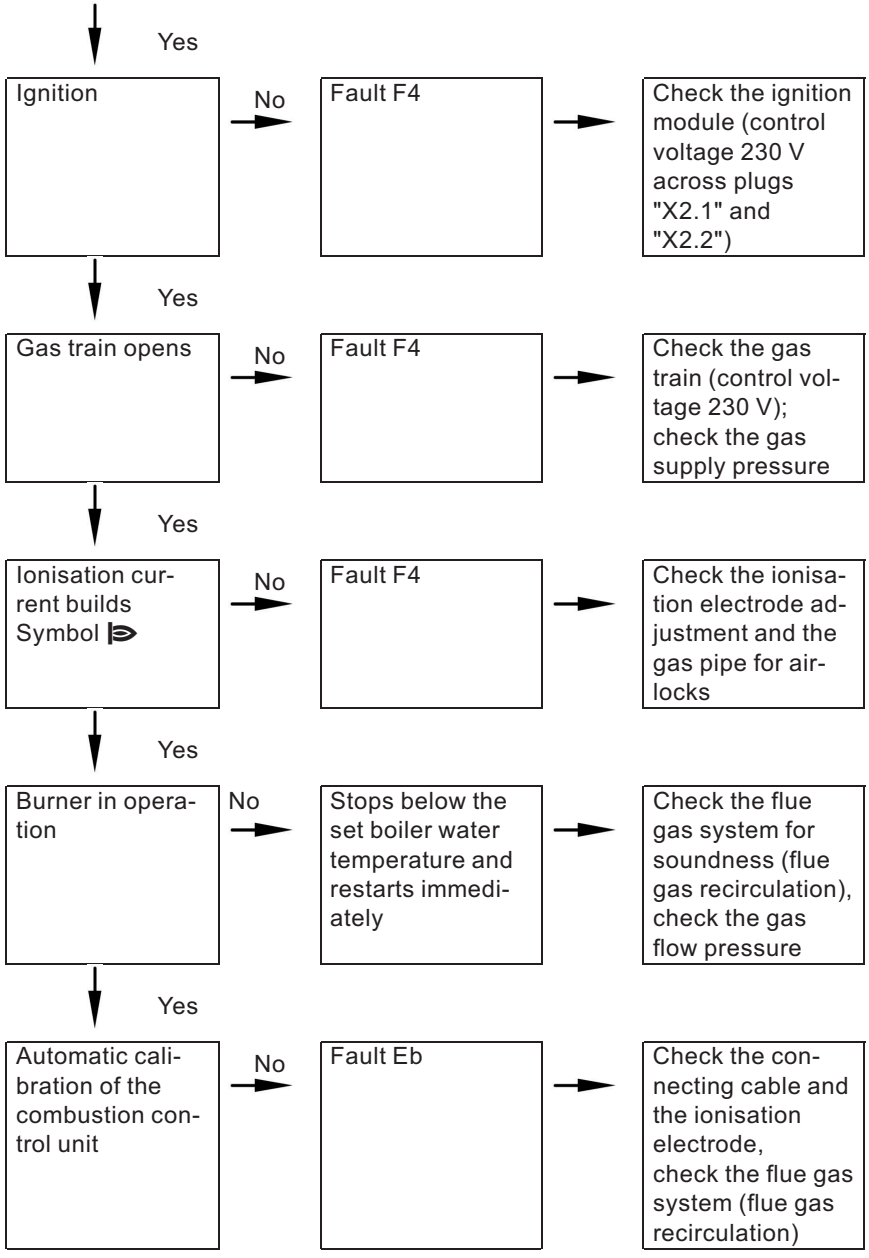


1. Set adjusting screw Ⓐ at the gas train to "2".
2. Switch ON/OFF switch "⏻" ON.
3. Adjust the gas type in coding address "82" (for a detailed description of the individual steps, see page 97):
   - Call up code 2
   - In coding address "11", select value "9"
   - In coding address "82", select value "1" (operation with LPG)
   - In code "11" select value ≠ "9".
   - Terminate code 2.
4. Open the gas shut-off valve.
5. Affix label "G31" (included with the technical documentation) above label "G20/G25" on the cover.

Function sequence and possible faults


Display screen
Measures
Control unit issues heat demand
No
Increase set value and ensure heat is drawn off
Yes
Fan starts
No
after approx. 51 s fault F9
Check the fan, fan connecting cables, power at the fan and fan control

Further details regarding the individual steps (cont.)


Yes
Ignition
No
Fault F4
Check the ignition module (control voltage 230 V across plugs "X2.1" and "X2.2")
Yes
Gas train opens
No
Fault F4
Check the gas train (control voltage 230 V); check the gas supply pressure
Yes
Ionisation current builds
Symbol
No
Fault F4
Check the ionisation electrode adjustment and the gas pipe for airlocks
Yes
Burner in operation
No
Stops below the set boiler water temperature and restarts immediately
Check the flue gas system for soundness (flue gas recirculation), check the gas flow pressure
Yes
Automatic calibration of the combustion control unit
No
Fault Eb
Check the connecting cable and the ionisation electrode, check the flue gas system (flue gas recirculation)

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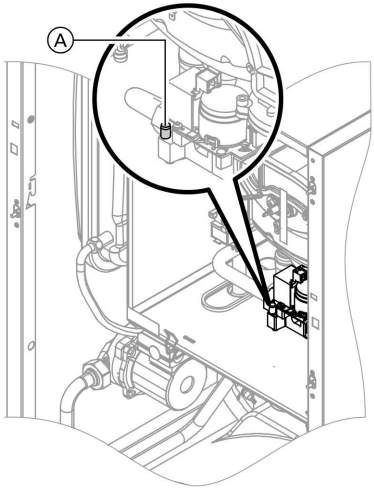
Further details regarding the individual steps (cont.)

For further details regarding faults,
see page 75.

Checking the static and supply pressure

Danger
CO build-up as a result of an incorrect burner setup can have serious health implications.
Carry out a CO test prior to and after work on gas equipment.

Operation with LPG
Flush the LPG tank twice during commissioning/replacement. Thoroughly vent the tank and gas supply lines after flushing.



1. Close the gas shut-off valve.
2. Release screw Ⓐ inside test connector "PE" on the gas train, but do not remove it; then connect the pressure gauge.
3. Open the gas shut-off valve.
4. Measure the static pressure and record it in the service report on page 129.
   Set value: max. 57.5 mbar
5. Start the boiler.

   Note
   During commissioning, the boiler can enter a fault state because of airlocks in the gas pipe. After approx. 5 s press "RESET" to reset the burner.
6. Check the supply (flow) pressure.

   Set value:
   - Natural gas: 20 mbar
   - LPG: 50 mbar

   Note
   Use suitable test equipment with a resolution of at least 0.1 mbar to measure the supply pressure.

Further details regarding the individual steps (cont.)

7. Record the actual value in the service report on page 129.
   Take the action shown in the following table.

8. Shut down the boiler, close the gas shut-off valve, remove the pressure gauge and close test nipple Ⓐ with the screw.

9. Open the gas shut-off valve and start up the boiler.

Danger
Gas escaping from the test nipple leads to a risk of explosions.
Check test connector Ⓐ for tightness.

Supply (flow) pressure for natural gas	Supply (flow) pressure for LPG	Measures
below 17.4 mbar	below 42.5 mbar	Do not start the boiler. Notify your mains gas or LPG supplier.
17.4 to 25 mbar	42.5 to 57.5 mbar	Start the boiler.
in excess of 25 mbar	in excess of 57.5 mbar	Install a separate gas pressure governor upstream of the system and regulate the inlet pressure to 20 mbar for natural gas or 50 mbar for LPG. Notify your mains gas or LPG supplier.

Setting the maximum output

You can limit the maximum output for **heating operation**. The limit is set via the modulation range. The max. adjustable heating output is limited upwards by the boiler coding card.

1. Start the boiler.

Further details regarding the individual steps (cont.)

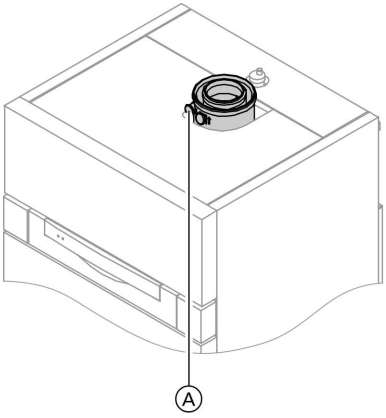
2. ⏻ + 🛁 press simultaneously:
A value flashes on the display (e.g. "85") and "⊫" appears. In the delivered condition, this value represents 100 % of rated output.
On weather-compensated control units, the display additionally shows **"Max. output"**.

⊕/⊖ press for the required value in % of rated output as max. output.

OK to confirm.

3. Record the setting for the maximum output on the additional type plate supplied with the "technical documentation". Affix the type plate next to the type plate on top of the boiler.

Checking the balanced flue system tightness (annular gap check)



Ⓐ Combustion air port (ventilation air)

Further details regarding the individual steps (cont.)

For balanced flue systems tested together with the wall mounted gas fired boiler, the requirement for a tightness test during commissioning by the flue gas inspector is not applicable.
We recommend that your heating engineer carries out a simple leak/ tightness test during the commissioning of your system. For this, it would be sufficient to check the CO_2 or O_2 concentration in the combustion air at the annular gap of the balanced flue pipe.

The flue pipe is deemed to be gas-tight if the CO_2 concentration in the combustion air is no higher than 0.2 % or the O_2 concentration is at least 20.6 %.
If actual CO_2 values are higher or O_2 values are lower, then pressure test the flue pipe with a static pressure of 200 Pa.

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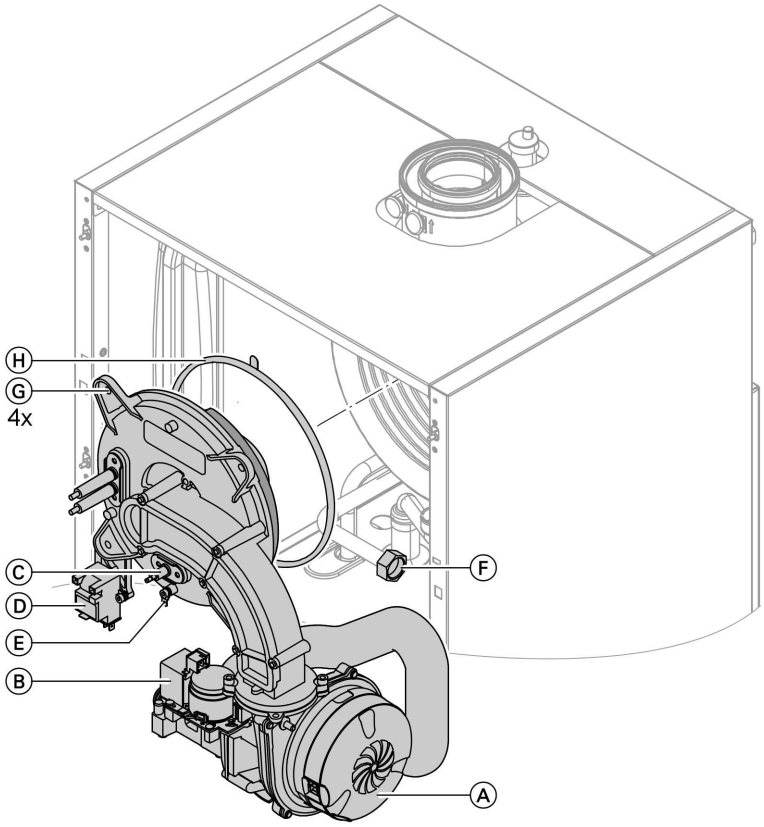
Further details regarding the individual steps (cont.)

Removing the burner and checking the burner gasket (replace gasket every 2 years)



1. Switch OFF the main power supply and the ON/OFF switch at the control unit.
2. Close the gas shut-off valve and safeguard against reopening.
3. Pull electrical cables from fan motor Ⓐ, gas valve Ⓑ, ionisation electrode Ⓒ, ignition unit Ⓓ and earth tab Ⓔ.
4. Undo gas supply pipe fitting Ⓕ.

Further details regarding the individual steps (cont.)

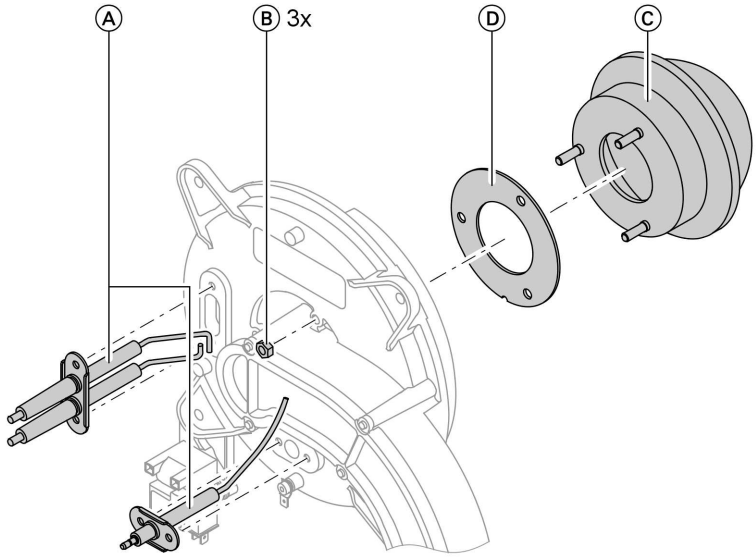
5. Release four nuts Ⓖ and remove the burner.

> **!** **Please note**
> Prevent damage to the wire gauze.
> Never rest the burner on the gauze assembly.

6. Check burner gasket Ⓗ for damage.
Generally replace the burner gasket **every 2 years**.

Checking the burner gauze assembly

Replace the burner gauze assembly if the wire mesh is damaged.



1. Remove electrodes Ⓐ.

2. Release three nuts Ⓑ and remove burner gauze assembly Ⓒ.

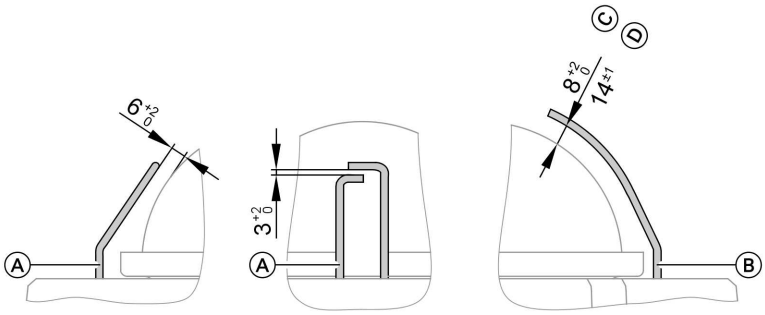
3. Remove old burner gauze assembly gasket Ⓓ.

Further details regarding the individual steps (cont.)

4. Insert a new burner gauze assembly with a new gasket and secure with three nuts.

Note
Torque: 4 Nm

Checking and adjusting the ignition and ionisation electrodes



Ⓐ Ignition electrodes
Ⓑ Ionisation electrode
Ⓒ For 3.8 to 19 kW
Ⓓ For 5.2 to 26 kW

1. Check the electrodes for wear and contamination.

2. Clean the electrodes with a small brush (not with a wire brush) or emery paper.

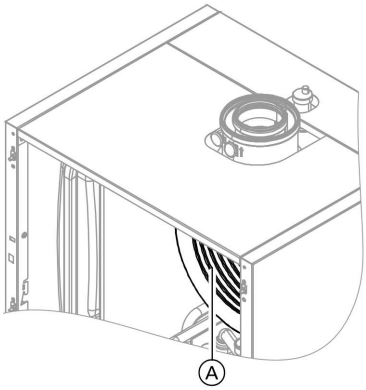
! **Please note**
Do not damage the wire gauze.

3. Check the electrode gaps. If the gaps are not as specified or the electrodes are damaged, replace and align the electrodes together with new gaskets. Tighten the electrode fixing screws with 2.5 Nm.

Further details regarding the individual steps (cont.)

Cleaning the heat exchanger and fitting the burner

Please note
Scratches on parts that are in contact with flue gas can lead to corrosion.
Never use brushes to clean the heat exchanger.



1. Use a vacuum cleaner to remove residues from the heat exchanger Ⓐ inside the combustion chamber.
2. If required, spray slightly acidic, chloride-free cleaning agents based on phosphoric acid (e.g. Antox 75 E) onto the heat exchanger Ⓐ and let the solution soak in for approx. 20 min.
3. Thoroughly flush the heat exchanger Ⓐ with water.
4. Install the burner. Fit the nut with a serrated washer and the remaining nuts, then tighten them diagonally with 4 Nm torque.
5. Fit the gas supply pipe with a new gasket.
6. Check the gas connections for tightness.

   Danger
   Escaping gas leads to a risk of explosion.
   Check all fittings for gas-tightness.
7. Connect the electrical cables/leads to each corresponding component.

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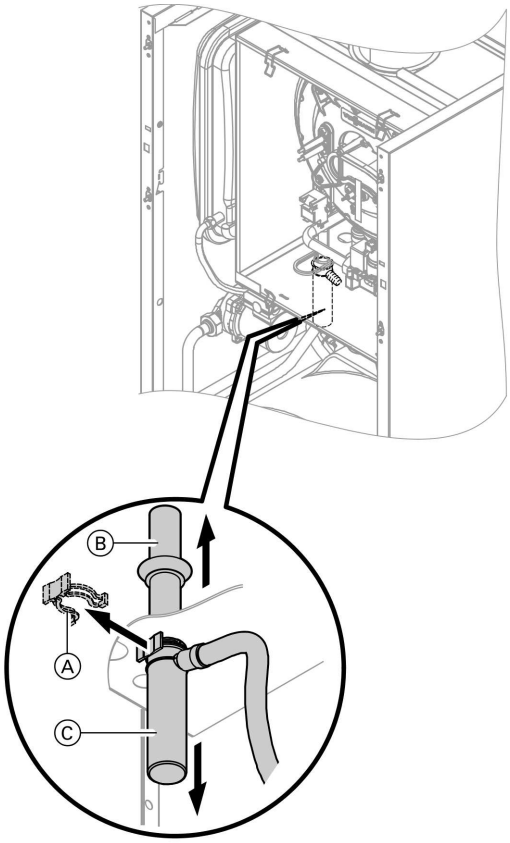
Further details regarding the individual steps (cont.)

Checking the condensate drain and cleaning the siphon



1. Check that the condensate can drain freely at the siphon.
2. Pull retaining clip Ⓐ off.
3. Pull filler pipe Ⓑ upwards.
4. Pull off lute Ⓒ downwards.
5. Pull the condensate hose from lute Ⓒ.
6. Clean the siphon.
7. Fill siphon with water and reassemble.

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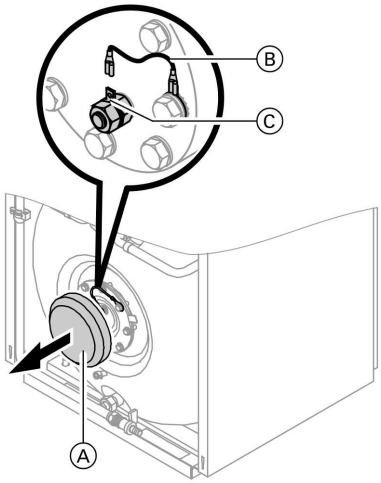
Further details regarding the individual steps (cont.)

Testing the anode earth current with an anode tester

Note
We recommend that the magnesium anode function is checked annually. This function test can be carried out without interrupting operation, by measuring the earth current with an anode tester.



1. Remove cover Ⓐ.
2. Pull earth lead Ⓑ from tab Ⓒ.
3. Connect the tester (up to 5 mA) in series between tab Ⓒ and earth cable Ⓑ.
   - The anode is OK if the indicated current is > 0.3 mA.
   - Visually inspect the anode, if the current measures < 0.3 mA or if there is no current at all (see page 27).

Cleaning the primary cylinder

Note
EN 806 specifies a visual inspection and (if required) cleaning every two years after the cylinder has been taken into use and thereafter according to requirements.

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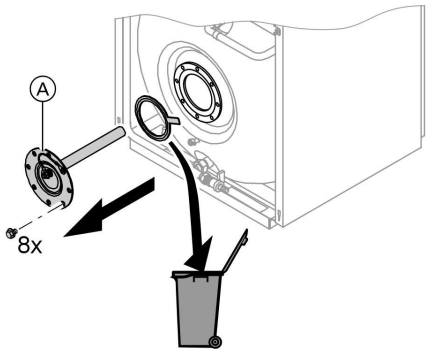
Further details regarding the individual steps (cont.)



1. Drain the primary cylinder.
2. Remove flange lid Ⓐ.
3. Disconnect the primary cylinder from the pipework to prevent contamination from entering the pipe system.
4. Remove loose deposits with a high pressure cleaner.

   Please note
   When cleaning the inside, only use plastic cleaning utensils.

5. Use a chemical cleaning agent to remove hard deposits that cannot be removed by a high pressure cleaner.

   Please note
   Never use hydrochloric acid based cleaning agents.

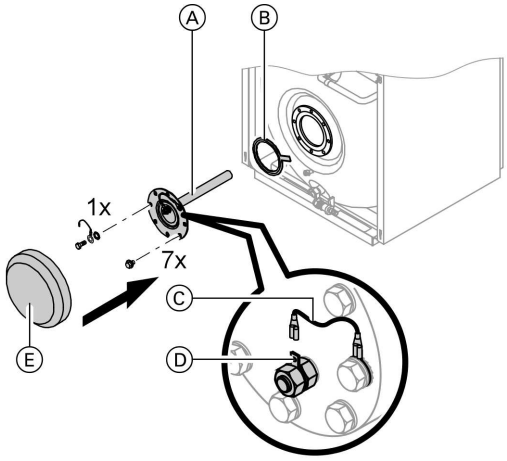
6. Thoroughly flush the primary cylinder after cleaning.

Checking and replacing the magnesium anode (if required)

Check the magnesium anode. If it is discovered that the anode has degraded to 10 to 15 mm Ø, we recommend replacing the magnesium anode.

Further details regarding the individual steps (cont.)

Returning the primary cylinder into use



1. Reconnect the primary cylinder to the pipework.
2. Insert new gasket Ⓑ underneath flange lid Ⓐ.
3. Fit the flange lid and tighten the screws with a maximum torque of 25 Nm.
4. Push earth lead Ⓒ onto tab Ⓓ.
5. Fit cover Ⓔ.
6. Fill the primary cylinder with drinking water.

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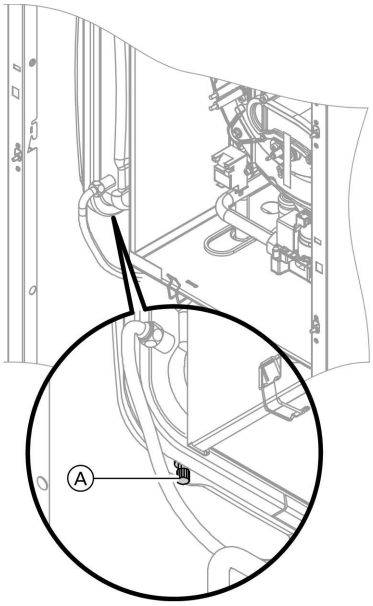
Further details regarding the individual steps (cont.)

Checking the diaphragm expansion vessel and system pressure



Note
Carry out this test on a cold system.

1. Drain the system, until the pressure gauge indicates "0".

2. If the diaphragm expansion vessel inlet pressure is lower than the static system pressure: Top up with nitrogen via connection Ⓐ, until the inlet pressure is 0.1 to 0.2 bar.

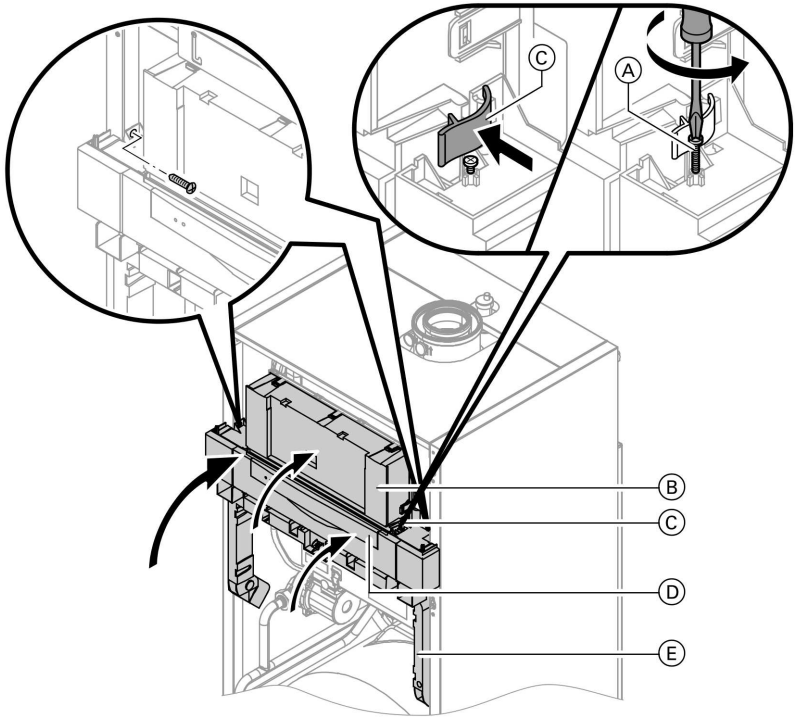
3. Top up your heating system with water and vent until the filling pressure of a cooled system is 0.1 to 0.2 bar higher than the inlet pressure of the diaphragm expansion vessel.
   Permiss. operating pressure: 3 bar

Further details regarding the individual steps (cont.)

Checking all gas equipment for tightness at operating pressure

Danger
Escaping gas leads to a risk of explosion.
Check gas equipment for tightness.

Locking the control unit into place



1. Pivot control unit Ⓑ with retaining frame Ⓔ up and secure with screws on the side.
2. Pivot control unit Ⓑ up and lock side closures Ⓒ.
3. Turn both screws Ⓐ up to the centre of side closures Ⓒ.

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Further details regarding the individual steps (cont.)

4. Close flap Ⓓ.

Checking the combustion quality

The electronic combustion control unit automatically ensures an optimum combustion quality. Only the combustion values need to be checked during commissioning and maintenance. For this, check the CO_2 or O_2 content. For a function description of the electronic combustion control unit, see page 115.

CO_2 or O_2 content

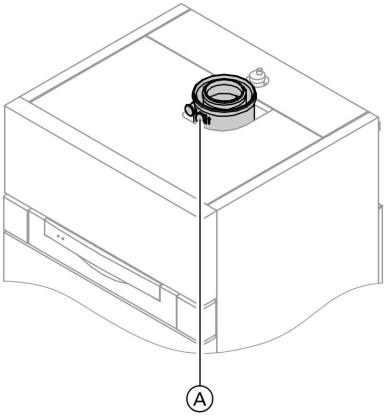
- The CO_2 content must be within the following ranges (upper and lower output):
  - 7.7 to 9.2% for natural gas E and LL
  - 9.3 to 10.9% for LPG P
- For all gas types, the O_2 content must be between 4.4% and 6.9%.

If the actual CO_2 or O_2 values lie outside their respective ranges, proceed with the following steps:

- Check the balanced flue system for tightness, see page 19.
- Check the ionisation electrode and connecting cable, see page 23.
- Check the parameters of the combustion control unit, see page 97.

Note

During commissioning, the combustion control unit carries out an automatic calibration. This may lead to CO emissions in excess of 1000 ppm for a short time.



1. Connect a flue gas analyser at flue gas port Ⓐ on the boiler flue connection.

2. Open the gas shut-off valve, start the boiler and create a heat demand.

3. Adjust the lower output.

Constant temperature control unit:

⏻ + OK press simultaneously:
"1" is shown.

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Further details regarding the individual steps (cont.)

Weather-compensated control unit:
⏻ + OK press simultaneously:
"Relay test" and then
"Base load" is shown.

4. Check the CO_2 content. Should the actual value deviate from the above ranges by more than 1%, implement steps from page 31.

5. Enter actual values into the service report.

6. Adjust the upper output.

Constant temperature control unit:
⊕ press:
"2" is shown.

Weather-compensated control unit:
⊕ press:
"Full load" is shown.

7. Check the CO_2 content. Should the actual value deviate from the above ranges by more than 1%, implement steps from page 31.

8. After testing, press OK.

9. Enter actual values into the service report.

Matching the control unit to the heating system

Note
Subject to the equipment level, the control unit must be matched to the system. Various system components are recognised automatically by the control unit and the relevant codes are adjusted automatically.
- *For the selection of an appropriate design, see the following diagrams.*
- *For coding steps, see page 46.*

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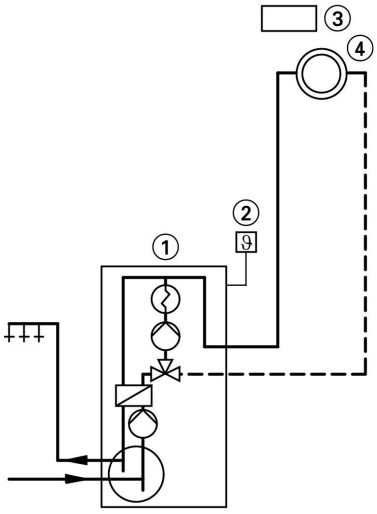
Further details regarding the individual steps (cont.)

System version 1
One heating circuit without mixer A1

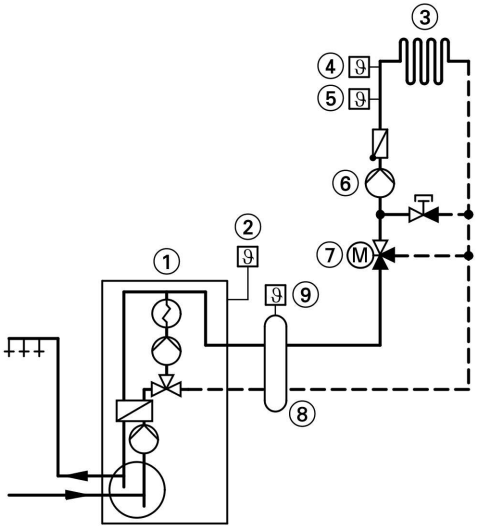


① Vitodens 333-F
② Outside temperature sensor (only for weather-compensated control units)
③ Vitotrol 100 (only for constant temperature control units)
④ Heating circuit without mixer A1

Required coding	
Operation with LPG	82:1

Further details regarding the individual steps (cont.)

System version 2
One heating circuit with mixer M2 and a low loss header



① Vitodens 333-F
② Outside temperature sensor
③ Heating circuit with mixer M2
④ Temperature limiter for limiting the max. temp. of underfloor heating systems
⑤ Flow temperature sensor M2
⑥ Heating circuit pump M2
⑦ Extension kit for one heating circuit with mixer M2
⑧ Low loss header
⑨ Flow temperature sensor, low loss header

Required coding	
Operation with LPG	82:1
System with only one heating circuit with mixer and DHW heating	00:4

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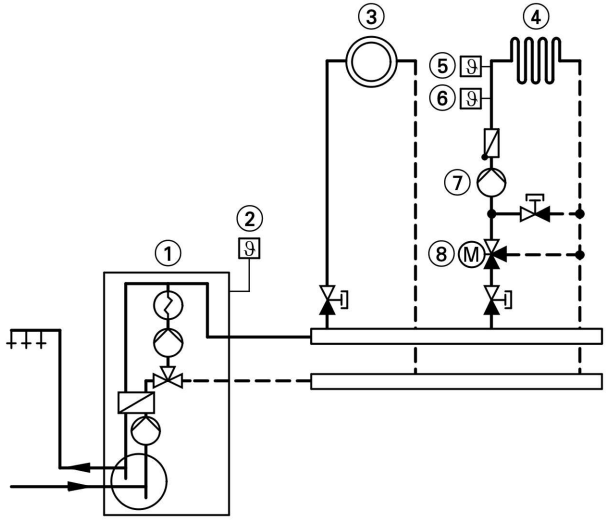
Further details regarding the individual steps (cont.)

System version 3
One heating circuit without mixer A1 and one heating circuit with mixer M2



① Vitodens 333-F
② Outside temperature sensor
③ Heating circuit without mixer A1
④ Heating circuit with mixer M2
⑤ Temperature limiter for limiting the max. temp. of underfloor heating systems
⑥ Flow temperature sensor M2
⑦ Heating circuit pump M2
⑧ Extension kit for one heating circuit with mixer M2

Note
The volume flow of the heating circuit without mixer must be at least 30% greater than the volume flow of the heating circuit with mixer.

Required coding	
Operation with LPG	82:1

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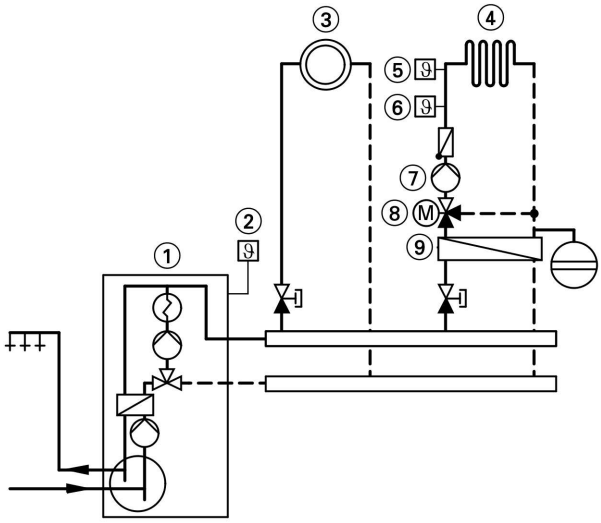
Further details regarding the individual steps (cont.)

System version 4
One heating circuit without mixer A1, one heating circuit with mixer M2 and system separation



① Vitodens 333-F
② Outside temperature sensor
③ Heating circuit without mixer A1
④ Heating circuit with mixer M2
⑤ Temperature limiter for limiting the max. temp. of underfloor heating systems
⑥ Flow temperature sensor M2
⑦ Heating circuit pump M2
⑧ Extension kit for one heating circuit with mixer M2
⑨ Heat exchanger for system separation

Required coding	
Operation with LPG	82:1

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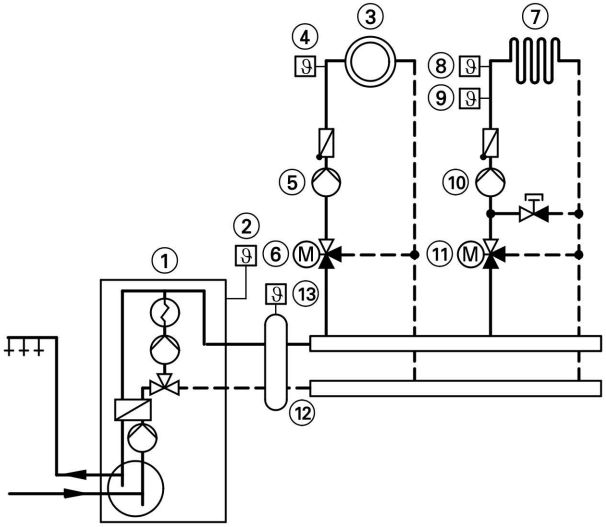
Further details regarding the individual steps (cont.)

System version 5
One heating circuit with mixer M1 (with Vitotronic 200-H), one heating circuit with mixer M2 (with extension kit) and low loss header (with/without DHW heating)



① Vitodens 333-F
② Outside temperature sensor
③ Heating circuit with mixer M1
④ Flow temperature sensor M1
⑤ Heating circuit pump M1
⑥ Vitotronic 200-H
⑦ Heating circuit with mixer M2
⑧ Temperature limiter for limiting the max. temp. of underfloor heating systems
⑨ Flow temperature sensor M2
⑩ Heating circuit pump M2
⑪ Extension kit for one heating circuit with mixer M2
⑫ Low loss header
⑬ Flow temperature sensor, low loss header

Required coding	
Operation with LPG	82:1
System with only one heating circuit with mixer and DHW heating	00:4

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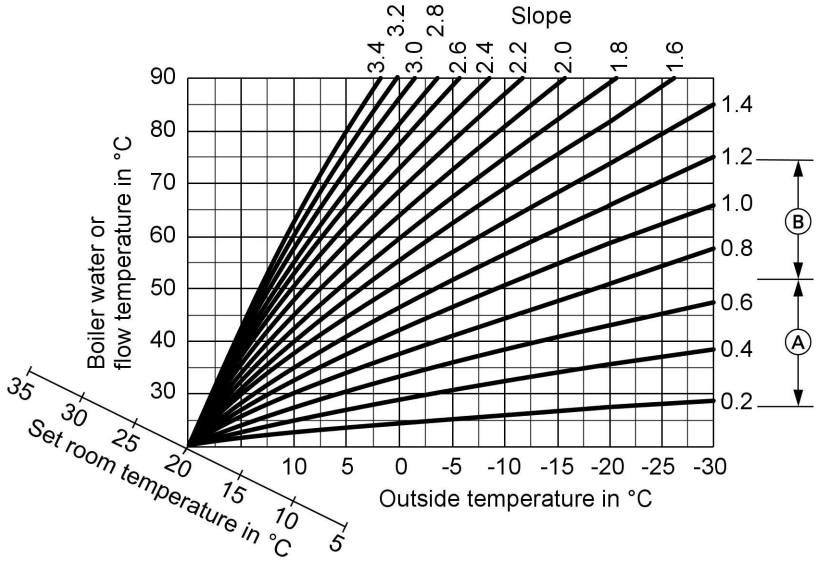
Further details regarding the individual steps (cont.)

Adjusting the heating curves (only for weather-compensated control units)

The heating curves illustrate the relationship between the outside temperature and the boiler water or flow temperature.
To put it simply: The lower the outside temperature, the higher the boiler water or flow temperature.

The room temperature, again, depends on the boiler water or the flow temperature.

Settings in the delivered condition:
- Slope = 1.4
- Level = 0



Ⓐ Heating curve slope for underfloor heating systems

Ⓑ Heating curve slope for low temperature heating systems (according to the Energy Savings Order [Germany])

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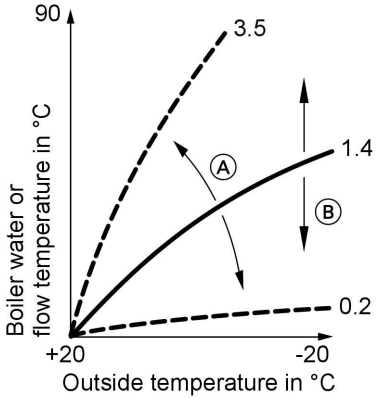
Further details regarding the individual steps (cont.)

Changing the slope and level



Ⓐ Changing the slope
Ⓑ Changing the level (vertical parallel offset of the heating curve)

1. **Slope:**
   Change with coding address "d3" in code 1.
   Setting range 2 to 35 (equals slope 0.2 to 3.5).

2. **Level:**
   Change with coding address "d4" in code 1.
   Setting range -13 to +40 K.

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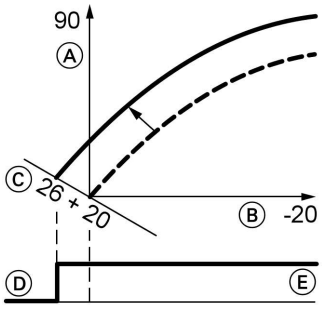
Further details regarding the individual steps (cont.)

Adjusting the set room temperature

Standard room temperature



Example 1: Adjustment of standard room temperature from 20 to 26 °C

Ⓐ Boiler water temperature or flow temperature in °C
Ⓑ Outside temperature in °C
Ⓒ Set room temperature in °C
Ⓓ Heating circuit pump "OFF"
Ⓔ Heating circuit pump "ON"

Press the following keys:

1. ⊕ "1 " flashes.

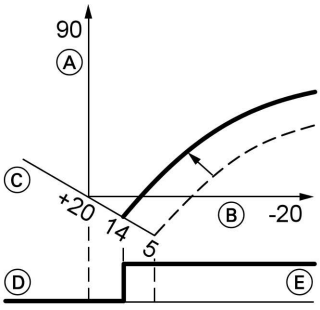
2. OK to select heating circuit A1 (heating circuit without mixer) **or**

3. ⊕ "2 " flashes.

4. OK to select heating circuit with mixer M2.

5. Adjust the set day temperature with rotary selector " ".
The value will be automatically accepted after approx. 2 s.
Accordingly, the heating curve is adjusted along set room temperature axis Ⓒ, which results in modified start/stop characteristics of the heating circuit pumps if heating circuit pump logic function is active.

Reduced room temperature



Example 2: Adjustment of reduced room temperature from 5 °C to 14 °C

Ⓐ Boiler water temperature or flow temperature in °C
Ⓑ Outside temperature in °C
Ⓒ Set room temperature in °C
Ⓓ Heating circuit pump "OFF"
Ⓔ Heating circuit pump "ON"

Press the following keys:

1. ⊕ "1 " flashes.

Further details regarding the individual steps (cont.)

2. OK to select heating circuit A1 (heating circuit without mixer)
or

3. ⊕ "2 III" flashes.

4. OK to select heating circuit with mixer M2.

5. Call up the set night temperature.

6. ⊕/⊖ Change the value.

7. OK Confirm the value.

Connecting the control unit to the LON system (only for weather-compensated control units)

The LON communication module (accessories) must be plugged in.

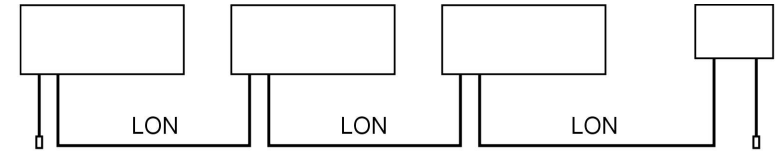
Installation instructions LON communication module

Note
The data transfer via LON can take several minutes.

Single boiler system with Vitotronic 200-H and Vitocom 300

Set up the LON subscriber numbers and further functions via code 2 (see the following table).

Note
*In the same LON system, the same number **cannot** be allocated twice.*
***Only one Vitotronic** may be programmed as fault manager.*

Boiler control unit	Vitotronic 200-H	Vitotronic 200-H	Vitocom
			
Subscriber no. 1 Code "77:1"	Subscriber no. 10 Code "77:10"	Subscriber no. 11 **Set** code "77:11"	Subscriber no. 99
Control unit is fault manager Code "79:1"	Control unit is not fault manager Code "79:0"	Control unit is not fault manager Code "79:0"	Device is fault manager
Control unit transmits the time Code "7b:1"	Control unit receives the time **Set** code "81:3"	Control unit receives the time **Set** code "81:3"	Device receives the time

Further details regarding the individual steps (cont.)

Boiler control unit	Vitotronic 200-H	Vitotronic 200-H	Vitocom
Control unit transmits outside temperature **Set** code "97:2"	Control unit receives outside temperature **Set** code "97:1"	Control unit receives outside temperature **Set** code "97:1"	—
LON subscriber fault monitoring Code "9C:20"	LON subscriber fault monitoring Code "9C:20"	LON subscriber fault monitoring Code "9C:20"	—

Updating the LON subscriber list

Only possible if all subscribers are connected and the control unit is programmed to be fault manager (code "79:1").

Press the following keys:

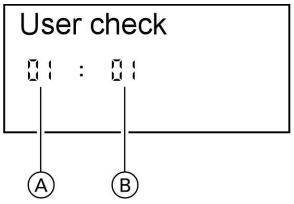
1. ⌂ + OK simultaneously for approx. 2 s.
Subscriber check initiated (see page 42).

2. ⊕ The subscriber list is updated after approx. 2 min.
The subscriber check is completed.

Carrying out a subscriber check

Communication with the system devices connected to the fault manager is tested with a subscriber check.

Precondition:
- The control unit must be programmed as **fault manager** (code "79:1")
- The LON subscriber number must be programmed in all control units (see page 41)
- The LON subscriber list in the fault manager must be up to date (see page 41)



Ⓐ Consecutive number in the subscriber list
Ⓑ Subscriber number

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Further details regarding the individual steps (cont.)

Press the following keys:

1. ⌂ + OK simultaneously for approx. 2 s.
   The subscriber check has been initiated.
2. ⊕/⊖ for the required subscriber.
3. OK Check is enabled "**Check**" flashes until its completion.
   The display and all key illuminations for the selected subscriber flash for approx. 60 s.
4. "**Check OK**" is displayed during communication between both devices.
   or
   "**Check not OK**" is displayed if there is no communication between both devices. Check the LON connection.
5. Repeat points 2 and 3 to check further subscribers.
6. ⌂ + OK simultaneously for approx. 1 s.
   The subscriber check is completed.

Instructing the system user

The system installer must hand the operating instructions to the system user and instruct him/her in the operation of the system.

Scanning and resetting the "Service" display

The red fault indicator flashes when the limits set via coding address "21" and "23" have been reached. The programming unit display flashes:

- On a constant temperature control unit:
  The defaulted hours run or the defaulted interval with clock symbol "⏲" (subject to setting)
- On a weather-compensated control unit:
  "Service"

Note

Set code "24:1" and then code "24:0" if a service is carried out before the service display is shown; the set service parameters for hours run and interval are then reset to 0.

Press the following keys:

1. ⓘ The service scan is active.
2. ⊕/⊖ Scan service messages.

Further details regarding the individual steps (cont.)

3. ⓞⓚ The service display will be cleared (for a weather-compensated control unit: "Acknowledge: Yes", reconfirm with ⓞⓚ).
The red fault display continues to flash.

Note
An acknowledged service message can be redisplayed by pressing ⓞⓚ (approx. 3 s).

After a service has been carried out

1. Reset code "24:1" to "24:0".
The red fault indicator extinguishes.

Note
If coding address "24" is not reset, the "Service" message reappears:
- *On a constant temperature control unit:*
  After 24 hours
- *On a weather-compensated control unit:*
  At 07:00 h on Monday

2. Reset the burner hours run, burner starts and consumption, if required.
Press the following keys:
ⓘ Scanning is active.
⊕/⊖ for the selected value.
⊕⊖ The selected value will be set to "0".
⊕/⊖ for further scans.
ⓞⓚ Scanning is completed.

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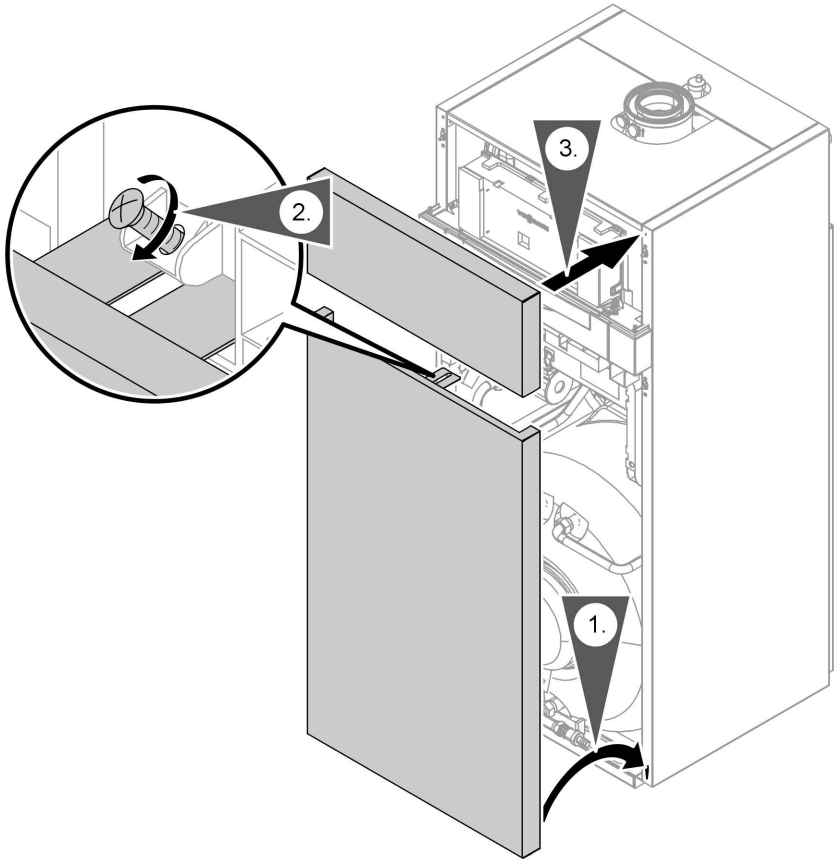
Further details regarding the individual steps (cont.)

Fitting the front panels



Code 1

Calling up code 1

Note

- *On weather-compensated control units, codes are displayed as plain text.*
- *Codes that are irrelevant due to the system equipment level or the setting of other codes will not be displayed.*
- *Heating systems with one heating circuit without mixer and one heating circuit with mixer:*
  Initially, the possible coding addresses "A0" to "d4" for the heating circuit without mixer A1 are scanned; then the coding addresses for the heating circuit with mixer M2 are scanned.

Press the following keys:

1. ⏻ + 🛏 simultaneously for approx. 2 s.

2. ⊕/⊖ for the required coding address; the address flashes.

3. OK to confirm.

4. ⊕/⊖ for the selected value.

5. OK to confirm; the display briefly shows "**accepted**" (weather-compensated control unit); the address flashes again.

6. ⊕/⊖ for the selection of further addresses.

7. ⏻ + 🛏 press simultaneously for approx. 1 s; code 1 is terminated.

Overview

Coding

Coding in the delivered condition		Possible change	
System design			
00:2	System version 1: 1 heating circuit without mixer A1, with DHW heating	00:4	System version 2, 5: 1 heating circuit with mixer M2, with DHW heating
		00:6	System version 3, 4: 1 heating circuit without mixer A1 and 1 heating circuit with mixer M2, with DHW heating

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Code 1 (cont.)

Coding in the delivered condition		Possible change	
Max. boiler water temp.			
06:...	Maximum limit of the boiler water temperature, defaulted in °C by the boiler coding card	06:20 to 06:127	Maximum limit of the boiler water temperature within the ranges defaulted by the boiler
Venting/filling			
2F:0	Programs disabled	2F:1	Venting program enabled
		2F:2	Fill program enabled
Subscriber no.			
77:1	LON subscriber number (only for weather-compensated control units)	77:2 to 77:99	LON subscriber number, adjustable from 1 to 99: 1 - 4 = Boiler 5 = Cascade 10 - 98 = Vitotronic 200-H 99 = Vitocom ***Note*** *Allocate each number* ***only*** *once.*
Summer econ. A1/M2			
A5:5	With heating circuit pump logic function (only for weather-compensated control units)	A5:0	Without heating circuit pump logic function
Min. flow temp. A1/M2			
C5:20	Electronic minimum flow temperature limit 20 °C (only for weather-compensated control units)	C5:1 to C5:127	Minimum limit adjustable from 10 to 127 °C (limited by the boiler coding card)
Max. flow temp. A1/M2			
C6:74	Electronic maximum flow temperature limit 74 °C (only for weather-compensated control units)	C6:10 to C6:127	Maximum limit adjustable from 10 to 127 °C (limited by the boiler coding card)
Slope A1/M2			
d3:14	Heating curve slope = 1.4 (only for weather-compensated control units)	d3:2 to d3:35	Heating curve slope adjustable from 0.2 to 3.5 (see page 38)

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Code 1 (cont.)

Coding in the delivered condition		Possible change	
Level A1/M2			
d4:0	Heating curve level = 0 (only for weather-compensated control units)	d4:–13 to d4:40	Heating curve level adjustable from –13 to 40 (see page 38)

Code 2

Calling up code 2

Note

- *On weather-compensated control units, codes are displayed as plain text.*
- *Codes that are irrelevant due to the system equipment level or the setting of other codes will not be displayed.*

Press the following keys:

1. ⌂ + ⌂ simultaneously for approx. 2 s.

2. OK to confirm.

3. ⊕/⊖ for the required coding address; the address flashes.

4. OK to confirm; the value flashes.

5. ⊕/⊖ for the selected value.

6. OK to confirm; the display briefly shows "**accepted**" (for weather-compensated control units); the address flashes again.

7. ⊕/⊖ for the selection of further addresses.

8. ⌂ + ⌂ press simultaneously for approx. 1 s; code 2 is terminated.

The coding addresses are grouped according to the following **function areas**. The respective function area is shown on the display.
The areas are scanned in the following sequence with ⊕/⊖:

Function area	Coding addresses
System design	00
Boiler/burner	06 to 54
DHW	56 to 73
General	76 to 9F
Heating circuit A1 (heating circuit without mixer)	A0 to Fb
Heating circuit with mixer M2	A0 to Fb

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Code 2 (cont.)

Note
Heating systems with one heating circuit without mixer and one heating circuit with mixer:
Initially, the possible coding addresses "A0" to "Fb" for the heating circuit without mixer A1 are scanned; then the coding addresses for the heating circuit with mixer M2 are scanned.

Coding

Coding in the delivered condition		Possible change	
System design			
00:2	System version 1: 1 heating circuit without mixer A1, with DHW heating	00:4	System version 2, 5: 1 heating circuit with mixer M2, with DHW heating
		00:6	System version 3, 4: 1 heating circuit without mixer A1 and 1 heating circuit with mixer M2, with DHW heating
Boiler/burner			
06:...	Maximum limit of the boiler water temperature, defaulted in °C by the boiler coding card	06:20 to 06:127	Maximum limit of the boiler water temperature within the ranges defaulted by the boiler
0d:0	Function "Emergency mode in case of insufficient system pressure" disabled	0d:1	Function "Emergency mode in case of insufficient system pressure" enabled. The burner starts with the lower output. The fault message "A2" will be displayed (see page 79) as long as the system operates in emergency mode.

Code 2 (cont.)

Coding in the delivered condition		**Possible change**	
0E:0	System pressure below maximum value	0E:1	Max. system pressure exceeded during operation. Fault message "A4" is displayed as long as the max. system pressure is exceeded. After the fault has been removed, reset the coding address manually to 0. ***Note*** *The value is set automatically.*
11:≠9	No access to the coding addresses for the parameters of the combustion control unit (see page 97)	11:9	Access to the coding addresses for the parameters of the combustion control unit enabled (see page 97)
21:0	No maintenance interval (operating hours) selected	21:1 to 21:9999	The number of hours run before the burner should be serviced is adjustable from 1 to 9999 h
23:0	No time interval for burner service	23:1 to 23:24	Interval adjustable from 1 to 24 months
24:0	No **"Service"** display	24:1	**"Service"** display (the address is automatically set and must be manually reset after a service has been carried out)
25:0	With outside temperature sensor for constant temperature control units: No recognition of outside temperature sensor or fault monitoring	25:1	Outside temperature sensor and fault monitoring recognised

Code 2 (cont.)

Coding in the delivered condition		Possible change	
28:0	No burner interval ignition	28:1 to 28:24	Time interval adjustable from 1 to 24 h. The burner is force-started once every 30 s (only when operating with LPG).
2E:0	Without external extension	2E:1	With external extension (automatic recognition)
2F:0	Venting program/fill program disabled	2F:1	Venting program enabled
		2F:2	Fill program enabled
30:2	Internal variable speed circulation pump with flow rate capturing (automatic adjustment)	30:0	Internal circulation pump without variable speed (e.g. temporarily for service)
		30:1	Internal variable speed circulation pump without flow rate capturing (automatic adjustment)
31:...	Set speed of the internal circulation pump when operated as boiler circuit pump %, defaulted by the boiler coding card	31:0 to 31:100	Set speed adjustable from 0 to 100 %
32:0	Influence of the signal "External blocking" on circulation pumps: All pumps in control function	32:1 to 32:15	Influence of the signal "External blocking" on circulation pumps: see the following table

Note

Generally, the burner will be blocked when signal "External blocking" is enabled.

Value address 32: ...	Internal circulation pump	Heating circuit pump Heating circuit without mixer	Heating circuit pump Heating circuit with mixer	Circulation pump for cylinder heating
0	Control funct.	Control funct.	Control funct.	Control funct.
1	Control funct.	Control funct.	Control funct.	OFF
2	Control funct.	Control funct.	OFF	Control funct.

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Code 2 (cont.)

Value address 32: ...	Internal circulation pump	Heating circuit pump Heating circuit without mixer	Heating circuit pump Heating circuit with mixer	Circulation pump for cylinder heating
3	Control funct.	Control funct.	OFF	OFF
4	Control funct.	OFF	Control funct.	Control funct.
5	Control funct.	OFF	Control funct.	OFF
6	Control funct.	OFF	OFF	Control funct.
7	Control funct.	OFF	OFF	OFF
8	OFF	Control funct.	Control funct.	Control funct.
9	OFF	Control funct.	Control funct.	OFF
10	OFF	Control funct.	OFF	Control funct.
11	OFF	Control funct.	OFF	OFF
12	OFF	OFF	Control funct.	Control funct.
13	OFF	OFF	Control funct.	OFF
14	OFF	OFF	OFF	Control funct.
15	OFF	OFF	OFF	OFF

Coding in the delivered condition		Possible change	
Boiler/burner			
34:0	Influence of the signal "External demand" on the circulation pumps: All pumps in control function	34:1 to 34:23	Influence of the signal "External demand" on the circulation pumps: see the following table

Value address 34: ...	Internal circulation pump	Heating circuit pump Heating circuit without mixer	Heating circuit pump Heating circuit with mixer	Circulation pump for cylinder heating
0	Control funct.	Control funct.	Control funct.	Control funct.
1	Control funct.	Control funct.	Control funct.	OFF
2	Control funct.	Control funct.	OFF	Control funct.
3	Control funct.	Control funct.	OFF	OFF
4	Control funct.	OFF	Control funct.	Control funct.
5	Control funct.	OFF	Control funct.	OFF
6	Control funct.	OFF	OFF	Control funct.
7	Control funct.	OFF	OFF	OFF
8	OFF	Control funct.	Control funct.	Control funct.
9	OFF	Control funct.	Control funct.	OFF

Code 2 (cont.)

Value address 34: ...	Internal circulation pump	Heating circuit pump Heating circuit without mixer	Heating circuit pump Heating circuit with mixer	Circulation pump for cylinder heating
10	OFF	Control funct.	OFF	Control funct.
11	OFF	Control funct.	OFF	OFF
12	OFF	OFF	Control funct.	Control funct.
13	OFF	OFF	Control funct.	OFF
14	OFF	OFF	OFF	Control funct.
15	OFF	OFF	OFF	OFF
16	ON	Control funct.	Control funct.	Control funct.
17	ON	Control funct.	Control funct.	OFF
18	ON	Control funct.	OFF	Control funct.
19	ON	Control funct.	OFF	OFF
20	ON	OFF	Control funct.	Control funct.
21	ON	OFF	Control funct.	OFF
22	ON	OFF	OFF	Control funct.
23	ON	OFF	OFF	OFF

Coding in the delivered condition		Possible change	
Boiler/burner			
38:0	Status burner control unit: Operational (no fault)	38:≠0	Status fault, burner control unit
51:0	Internal circulation pump is always started when there is a heat demand	51:1	When there is a heat demand, the internal circulation pump will only be started when the burner is operational. System with heating water buffer cylinder.
52:0	Without flow temperature sensor for low loss header	52:1	With flow temperature sensor for low loss header (automatic recognition)
53:3	Never adjust		
54:0	Never adjust		

Code 2 (cont.)

Coding in the delivered condition		Possible change	
DHW			
56:0	Set DHW temperature adjustable from 10 to 60 °C	56:1	Set DHW temperature adjustable from 10 to above 60 °C ***Note*** *Maximum value subject to boiler coding card. Observe the max. permissible DHW temperature.*
65:...	Information regarding the type of diverter valve; do not adjust.	65:0	Without diverter valve
		65:1	Diverter valve by Viessmann
		65:2	Diverter valve by Wilo
		65:3	Diverter valve by Grundfos
6C:100	Set speed; internal primary pump for DHW heating 100 %. Never adjust.		
6F:...	Maximum output for DHW heating in%, defaulted by the boiler coding card	6F:0 to 6F:100	Max. output during DHW heating adjustable from min. output to 100 %
71:0	DHW circulation pump: "ON" in accordance with the time program (only for weather-compensated control units)	71:1	"OFF" during DHW heating to the first set value
		71:2	"ON" during DHW heating to the first set value
72:0	DHW circulation pump: "ON" in accordance with the time program (only for weather-compensated control units)	72:1	"OFF" during DHW heating to the second set value
		72:2	"ON" during DHW heating to the second set value
73:0	DHW circulation pump: "ON" in accordance with the time program (only for weather-compensated control units)	73:1 to 73:6	During the time program 1x/h "ON" for 5 min up to 6x/h "ON" for 5 min
		73:7	Constantly "ON"

Code 2 (cont.)

Coding in the delivered condition		Possible change	
General			
76:0	Without LON communication module (only for weather-compensated control units)	76:1	With LON communication module (automatic recognition)
77:1	LON subscriber number (only for weather-compensated control units)	77:2 to 77:99	LON subscriber number, adjustable from 1 to 99: 1 - 4 = Boiler 5 = Cascade 10 - 98 = Vitotronic 200-H 99 = Vitocom ***Note*** *Allocate each number* ***only*** *once.*
79:1	With LON communication module: Control unit is fault manager (only for weather-compensated control units)	79:0	Control unit is not fault manager
7b:1	With LON communication module: The control unit transmits the time (only for weather-compensated control units)	7b:0	Do not transmit time
7F:1	Detached house (only for weather-compensated control units)	7F:0	Apartment block Separate adjustment of holiday program and time program for DHW heating, as option
80:1	A fault message is displayed, providing a fault is active for at least 5 s	80:0	Immediate fault message
		80:2 to 80:199	The minimum fault duration before a fault message is issued is adjustable from 10 s to 995 s; 1 step ≙ 5 s

Code 2 (cont.)

Coding in the delivered condition		Possible change	
81:1	Automatic summer/winter time changeover	81:0	Manual summer/winter time changeover
		81:2	Use of the radio clock receiver (automatic recognition)
		81:3	With LON communication module: The control unit receives the time
82:0	Operation with natural gas	82:1	Operation with LPG (only adjustable if coding address 11:9 has been set; see page 97)
88:0	Temperature displayed in °C (Celsius)	88:1	Temperature displayed in °F (Fahrenheit)
8A:175	Do not adjust		
90:128	Time constant for calculating the adjusted outside temperature 21.3 h	90:1 to 90:199	Fast (low values) or slow (high values) matching of the flow temperature, subject to the set value when the outside temperature changes; 1 step ≙ 10 min
91:0	No external heating program changeover via external extension (only for weather-compensated control units)	91:1	The external heating program changeover affects the heating circuit without mixer
		91:2	The external heating program changeover affects the heating circuit with mixer
		91:3	The external heating program changeover affects the heating circuit without mixer and the heating circuit with mixer
95:0	Without Vitocom 100 communication interface	95:1	With Vitocom 100 communication interface (automatic recognition)

Code 2 (cont.)

Coding in the delivered condition		Possible change	
97:0	With LON communication module: The outside temperature of the sensor connected to the control unit is utilised internally (only for weather-compensated control units)	97:1	The control unit receives the outside temperature
		97:2	The control unit sends the outside temperature to the Vitotronic 200-H
98:1	Viessmann system number (in conjunction with monitoring several systems via Vitocom 300)	98:1 to 98:5	System number adjustable from 1 to 5
9b:0	No minimum set boiler water temperature for external demand	9b:1 to 9b:127	Minimum set boiler water temperature adjustable from 1 to 127 °C (limited by the boiler-specific parameters)
9C:20	Monitoring LON subscribers. If a subscriber fails to respond, the values defaulted inside the control unit will be used after 20 min. Only then will a fault message be issued. (only for weather-compensated control units)	9C:0	No monitoring
		9C:5 to 9C:60	The time is adjustable from 5 to 60 min
9F:8	Differential temperature 8 K; only in conjunction with the mixer circuit (only for weather-compensated control units)	9F:0 to 9F:40	Differential temperature adjustable from 0 to 40 K
Heating circuit A1/M2			
A0:0	Without remote control (only for weather-compensated control units)	A0:1	With Vitotrol 200 (automatic recognition)
		A0:2	With Vitotrol 300 (automatic recognition)

Code 2 (cont.)

Coding in the delivered condition		Possible change	
A3:2	Outside temperature below 1 °C: Heating circuit pump "ON" Outside temperature above 3 °C: Heating circuit pump "OFF"	A3:-9 to A3:15	Heating circuit pump "ON/OFF" (see the following table)

Please note
When selecting a value below 1 °C, there is a risk of pipes outside the thermal envelope of the building being damaged by frost.
The standby mode, in particular, should be taken into consideration, e.g. during holidays.

Parameter Address A3:...	Heating circuit pump "ON"	"OFF"
-9	-10 °C	-8 °C
-8	-9 °C	-7 °C
-7	-8 °C	-6 °C
-6	-7 °C	-5 °C
-5	-6 °C	-4 °C
-4	-5 °C	-3 °C
-3	-4 °C	-2 °C
-2	-3 °C	-1 °C
-1	-2 °C	0 °C
0	-1 °C	1 °C
1	0 °C	2 °C
2 to 15	1 °C to 14 °C	3 °C 16 °C

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Code 2 (cont.)

Coding in the delivered condition		Possible change	
Heating circuit A1/M2			
A4:0	With frost protection (only for weather-compensated control units)	A4:1	No frost protection; this setting is only possible if code "A3: -9" has been selected. ***Note*** *Observe the note for code "A3"*
A5:5	With heating circuit pump logic function (economy circuit): Heating circuit pump "OFF" when the outside temperature (AT) is 1 K higher than the set room temperature (RT_{set}) $AT > RT_{set} + 1$ K (only for weather-compensated control units)	A5:0	Without heating circuit pump logic function
		A5:1 to A5:15	With heating circuit pump logic function: Heating circuit pump "OFF" (see the following table)

Parameter address A5:...	With heating circuit pump logic function: Heating circuit pump "OFF"
1	$AT > RT_{set} + 5$ K
2	$AT > RT_{set} + 4$ K
3	$AT > RT_{set} + 3$ K
4	$AT > RT_{set} + 2$ K
5	$AT > RT_{set} + 1$ K
6	$AT > RT_{set}$
7 to 15	$AT > RT_{set} - 1$ K
	$AT > RT_{set} - 9$ K

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Code 2 (cont.)

Coding in the delivered condition		Possible change	
Heating circuit A1/M2			
A6:36	Extended economy function **disabled** (only for weather-compensated control units)	A6:5 to A6:35	Extended economy control enabled, i.e. the burner and heating circuit pump will be switched OFF and the mixer closed at a variable value, adjustable between 5 and 35 °C plus 1 °C. Base value is the adjusted outside temperature. This value is based on the actual outside temperature and a time constant that takes the cooling down of an average building into consideration.
A7:0	Without mixer economy function (only for weather-compensated control units)	A7:1	With mixer economy function (extended heating circuit pump logic): Heating circuit pump also "OFF": If a mixer has been closed for longer than 20 min. Heating pump "ON": ■ If the mixer changes to control function ■ If there is a risk of frost
A8:1	Heating circuit with mixer M2 creates a demand for the internal circulation pump (only for weather-compensated control units)	A8:0	Heating circuit with mixer M2 creates no demand for the internal circulation pump

Code 2 (cont.)

Coding in the delivered condition		Possible change	
A9:7	With pump idle time: Heating circuit pump "OFF" if the set value changes through a change in operating mode or through a change in the set room temperature (only for weather-compensated control units)	A9:0	Without pump idle time
		A9:1 to A9:15	With pump idle time; adjustable from 1 to 15
b0:0	With remote control: Heating mode/reduced mode: weather-compensated (only for weather-compensated control units; change the coding only for the heating circuit with mixer M2)	b0:1	Heating mode: weather-compensated Reduced mode: with room temperature hook-up
		b0:2	Heating mode: with room temperature hook-up Reduced mode: weather-compensated
		b0:3	Heating mode/reduced mode: with room temperature hook-up
b2:8	Heating with room temperature hook-up must be programmed for remote control and for the heating circuit: Room influence factor 8 (only for weather-compensated control units; change the coding only for the heating circuit with mixer M2)	b2:0	Without room influence
		b2:1 to b2:64	Room influence factor adjustable from 1 to 64
b5:0	With remote control: No room temperature-dependent heating circuit pump logic function (only for weather-compensated control units; change the coding only for the heating circuit with mixer M2)	b5:1 to b5:8	Heating circuit pump logic function, see the following table:

Code 2 (cont.)

Parameter address b5:...	With heating circuit pump logic function: Heating circuit pump "OFF"	Heating circuit pump "ON"
1	$RT_{actual} > RT_{set} + 5$ K	$RT_{actual} < RT_{set} + 4$ K
2	$RT_{actual} > RT_{set} + 4$ K	$RT_{actual} < RT_{set} + 3$ K
3	$RT_{actual} > RT_{set} + 3$ K	$RT_{actual} < RT_{set} + 2$ K
4	$RT_{actual} > RT_{set} + 2$ K	$RT_{actual} < RT_{set} + 1$ K
5	$RT_{actual} > RT_{set} + 1$ K	$RT_{actual} < RT_{set}$
6	$RT_{actual} > RT_{set}$	$RT_{actual} < RT_{set} - 1$ K
7	$RT_{actual} > RT_{set} - 1$ K	$RT_{actual} < RT_{set} - 2$ K
8	$RT_{actual} > RT_{set} - 2$ K	$RT_{actual} < RT_{set} - 3$ K

Coding in the delivered condition		Possible change	
Heating circuit A1/M2			
C5:20	Electronic minimum flow temperature limit 20 °C (only for weather-compensated control units)	C5:1 to C5:127	Minimum limit adjustable from 1 to 127 °C (limited by boiler-specific parameters)
C6:74	Electronic maximum flow temperature limit 74 °C (only for weather-compensated control units)	C6:10 to C6:127	Maximum limit adjustable from 10 to 127 °C (limited by boiler-specific parameters)
d3:14	Heating curve slope = 1.4 (only for weather-compensated control units)	d3:2 to d3:35	Heating curve slope adjustable from 0.2 to 3.5 (see page 38)
d4:0	Heating curve level = 0 (only for weather-compensated control units)	d4:–13 to d4:40	Heating curve level adjustable from –13 to 40 (see page 38)
d5:0	The external heating program changeover alters the heating program to "Constant operation with reduced room temperature" (only for weather-compensated control units)	d5:1	The external heating program changeover changes the heating program to "Constant central heating with standard room temperature"

Code 2 (cont.)

Coding in the delivered condition		Possible change	
E1:1	With remote control: The set day temperature is adjustable at the remote control unit from 10 to 30 °C (only for weather-compensated control units)	E1:0	Set day temperature adjustable from 3 to 23 °C
		E1:2	Set day temperature adjustable from 17 to 37 °C
E2:50	With remote control: No display correction for the actual room temperature (only for weather-compensated control units)	E2:0 to E2:49	Display correction -5 K to Display correction -0.1 K
		E2:51 to E2:99	Display correction +0.1 K to Display correction +4.9 K
E5:0	Without external variable speed heating circuit pump (only for weather-compensated control units)	E5:1	With external variable speed heating circuit pump (automatic recognition)
E6:65	Maximum speed of the variable speed heating circuit pump: 65 % of the speed in standard mode (only for weather-compensated control units)	E6:0 to E6:100	Maximum speed adjustable from 0 to 100 %
E7:30	Minimum speed of the variable speed heating circuit pump: 30 % of the maximum speed (only for weather-compensated control units)	E7:0 to E7:100	Minimum speed adjustable from 0 to 100 % of max. speed
E8:1	Minimum speed in operation with reduced room temperature subject to the setting in coding address "E9" (only for weather-compensated control units)	E8:0	Speed subject to the setting in coding address "E7"

Code 2 (cont.)

Coding in the delivered condition		Possible change	
E9:45	Speed of the variable speed heating circuit pump: 45 % of the maximum speed in reduced temperature mode (only for weather-compensated control units)	E9:0 to E9:100	Speed adjustable from 0 to 100 % of the maximum speed during operation with reduced room temperature
F1:0	Screed drying function disabled (only for weather-compensated control units).	F1:1 to F1:6	Screed drying function adjustable in accordance with 6 optional temperature/time profiles (see page 110)
		F1:15	Constant flow temperature 20 °C
F2:8	Time limit for party mode or external operating mode changeover via key 8 h (only for weather-compensated control units)*1	F2:0	No time limit for party mode*1
		F2:1 to F2:12	Time limit adjustable from 1 to 12 h*1
F5:12	Run-on time of the internal circulation pump in heating mode: 12 min (only for constant temperature control units)	F5:0	No run-on time for the internal circulation pump
		F5:1 to F5:20	Run-on time of the internal circulation pump adjustable from 1 to 20 min
F6:25	In the "DHW only" operating mode, the internal circulation pump is permanently ON (only for constant temperature control units)	F6:0	In the "DHW only" operating mode, the internal circulation pump is permanently OFF
		F6:1 to F6:24	In the "DHW only" operating mode, the internal circulation pump will be started for 10 min respectively 1 to 24 times per day.

*1 *Party mode ends **automatically** in the "Heating and DHW" program, when the system changes over to operation with standard room temperature.*

Code 2 (cont.)

Coding in the delivered condition		Possible change	
F7:25	In "Standby mode", the internal circulation pump is permanently ON (only for constant temperature control units)	F7:0	In "Standby mode", the internal circulation pump is permanently OFF
		F7:1 to F7:24	In "Standby mode", the internal circulation pump in operating mode will be started for 10 min respectively 1 to 24 times per day.
F8:-5	Temperature limit for terminating the reduced mode -5 ºC, see example on page 112. Observe the setting of coding address "A3". (only for weather-compensated control units)	F8:+10 to F8:-60	Temperature limit adjustable from +10 to -60 °C
		F8:-61	Function disabled
F9:-14	Temperature limit for raising the reduced set room temp. -14 ºC, see example on page 112. (only for weather-compensated control units)	F9:+10 to F9:-60	Temperature limit for raising the set room temperature to the value selected for standard mode adjustable from +10 to -60 °C
FA:20	Raising the set boiler water temperature or the set flow temperature when changing from operation with reduced room temperature to operation with standard room temperature, by 20 %. See example on page 113 (only for weather-compensated control units).	FA:0 to FA:50	Temperature rise adjustable from 0 to 50 %

Code 2 (cont.)

Coding in the delivered condition		Possible change	
Fb:30	Duration for raising the set boiler water temperature or the set flow temperature (see coding address "FA") 60 min. See example on page 113 (only for weather-compensated control units).	Fb:0 to Fb:150	Duration adjustable from 0 to 300 min; 1 step ≙ 2 min

Resetting codes to their delivered condition

Constant temperature control unit:

1. + simultaneously for approx. 2 s.

2. press.

Weather-compensated control unit:

1. + simultaneously for approx. 2 s.

2. "**Factory set? Yes**" appears.

3. to confirm

or

/ to select "**Factory set? No**".

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Service level overview

Function	Key combination	Exit	Page
Temperatures, boiler coding card, brief scans	Press ⏻ and 🛁 for approx. 2 s simultaneously	Press OK	68
Relay test	Press ⏻ and OK for approx. 2 s simultaneously	Press OK	71
Max. output (heating mode)	Press ⏻ and 🌡🛁 for approx. 2 s simultaneously	Press OK	18
Operating conditions and sensors	Press i	Press OK	73
Service scan	i (if "Service" flashes)	Press OK	43
Adjusting the display contrast	Press OK and + simultamultaneously; the display darkens	–	–
	Press OK and – simultaneously; the display becomes lighter	–	–
Calling up acknowledged fault messages	Press OK for approx. 3 s		76
Fault history	Press 🛁 and OK for approx. 2 s simultaneously	Press OK	77
Subscriber check (in conjunction with a LON system)	Press 🛁 and OK for approx. 2 s simultaneously	Press 🛁 and OK simultaneously	42
Emissions test function "🔧"	Weather-compensated control unit: Press 🌡🛁 and 🌙 for approx. 2 s simultaneously Constant temperature control unit: Press 🌡🛁 and 🌡🛁 for approx. 2 s simultaneously	Press 🌡🛁 and 🌙 or 🌡🛁 and 🌡🛁 simultaneously for approx. 1 s, alternatively automatic after 30 min	–
Coding level 1 Plain text display	Press ⏻ and 🛁 for approx. 2 s simultaneously	Press ⏻ and 🛁 for approx. 1 s simultaneously	46
Coding level 2 Numerical display	Press 🛁 and 🛁 for approx. 2 s simultaneously	Press 🛁 and 🛁 for approx. 1 s simultaneously	48

Service level overview (cont.)

Function	Key combination	Exit	Page
Resetting codes to their delivered condition	Press ⌂ and ⌂ simultaneously for approx. 2 s; then ⊕	–	66

Temperatures, boiler coding card and brief scans

Constant temperature control unit

Constant temperature control unit

Press the following keys:

1. ⏻ + ⌂ simultaneously for approx. 2 s.

2. ⊕/⊖ for the required scan.

3. OK Scanning is completed.

The following values can be scanned, subject to the actual system equipment level:

Brief scan	Display screen				
0	0	0	0	0	0
0	0	System designs 1 to 6	Software version Control unit		Software version Programming unit
1	0	Software version Burner control unit		External extension software version 0: no external extension	0
E	0: no external demand 1: external demand	0: no external blocking 1: external blocking	External 0 to 10 V hook-up Display in °C 0: no external hook-up		
3	0	0	Set boiler water temperature		
A	0	0	Highest demand temperature		
4	0	Burner control unit type		Equipment type	

Temperatures, boiler coding card and brief scans (cont.)

Brief scan	Display screen				
8	8	8	8	8	8
5	0	0	Set cylinder temperature		
b	0	0	Max. output in %		
C	0	Boiler coding card (hexadecimal)			
c	0	Version Equipment		Version Burner control unit	
d	0	0	0	Variable speed pump 0 w/o 1 Wilo 2 Grundfos	Software version variable speed pump 0: no variable speed pump

Weather-compensated control unit

Weather-compensated control unit

Press the following keys:

1. ⏻ + 🔥 simultaneously for approx. 2 s.

2. ⊕/⊖ for the required scan.

3. OK Scanning is completed.

The following values can be scanned, subject to the actual system equipment level:

Display screen	Explanation
Slope A1 – level A1	
Slope M2 – level M2	
Outside temp. adj.	The adjusted outside temperature can be reset to the actual outside temperature with ⊕.
Outside temp. actual	
Boiler temp. Set	
Boiler temp. actual	
DHW temp. set	
DHW temp. actual	
DHW outlet temp. actual	
DHW outlet temp. Set	
Flow temp. Set	Heating circuit with mixer
Flow temp. actual	Heating circuit with mixer

Temperatures, boiler coding card and brief scans (cont.)

Display screen	Explanation
Mixed flow temp. set	Low loss header
Mixed flow temp. actual	Low loss header
Boiler coding card	
Brief scan 1 to 8	

Brief scan	Display screen					
	8	8	8	8	8	8
1	Software version Control unit		Equipment version		Burner control unit version	
2	System designs 01 to 06		Number of KM BUS subscribers	Maximum demand temperature		
3	0	Software version Programming unit	Software version Mixer extension 0: no mixer extension	0	Software version LON module	Software version External extension 0: no external extension
4	Software version Burner control unit		Type Burner control unit		Equipment type	
5	0: no external demand 1: external demand	0: no external blocking 1: external blocking	0	External 0 to 10 V hook-up Display in °C 0: no external hook-up		
6	Number of LON subscribers		Check digit	Max. output Details in %		

Temperatures, boiler coding card and brief scans (cont.)

Brief scan	Display screen					
	8	8	8	8	8	8
	Boiler		Heating circuit A1 (without mixer)		Heating circuit M2 (with mixer)	
7	0	0	Remote control 0 w/o 1 Vitotrol 200 2 Vitotrol 300	Software version Remote control 0: no remote control	Remote control 0 w/o 1 Vitotrol 200 2 Vitotrol 300	Software version Remote control 0: no remote control
	Internal circulation pump		Heating circuit pump to connection extension			
8	0	0	Variable speed pump 0 w/o 1 Wilo 2 Grundfos	Software version variable speed pump 0: no variable speed pump	Variable speed pump 0 w/o 1 Wilo 2 Grundfos	Software version variable speed pump 0: no variable speed pump

Checking outputs (relay test)

Constant temperature control unit

Press the following keys:

1. ⏻ + OK simultaneously for approx. 2 s.

2. ⊕/⊖ for the required relay output.

3. OK Relay test is completed.

The following relay outputs can be controlled subject to system design:

Display screen	Explanation
1	Burner modulation base load
2	Burner modulation full load
3	Internal pump / output 20 "ON"

Checking outputs (relay test) (cont.)

Display screen	Explanation
4	Diverter valve set to heating mode
5	Diverter valve in central position (filling/draining)
6	Diverter valve set to DHW mode
10	Output 28 internal extension
11	Heating circuit pump A1 External extension H1
14	Central fault message External extension H1

Weather-compensated control unit

Press the following keys:

1. ⏻ + OK simultaneously for approx. 2 s.

2. ⊕/⊖ for the required relay output.

3. OK Relay test is completed.

The following relay outputs can be controlled subject to system design:

Display screen	Explanation
Base load	Burner modulation base load
Full load	Burner modulation full load
Int. pump ON	Int. output 20
Heating valve	Diverter valve set to heating mode
Valve central position	Diverter valve in central position (filling/draining)
DHW valve	Diverter valve set to DHW mode
Heating circuit pump M2 On	Mixer extension
Mixer OPEN	Mixer extension
Mixer CLOSE	Mixer extension
Output int. ON	Output 28 internal extension
Heating circuit pump A1 ON	External extension H1
Central fault ON	External extension H1

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Scanning operating conditions and sensors

Constant temperature control unit

Press the following keys:

1. ⓘ press.

2. ⊕/⊖ for the required operating condition.

3. OK Scanning is completed.

The following operating conditions can be scanned, subject to the actual system equipment level:

Display screen	Explanation
1 15 °C/°F	Actual outside temperature
3 65 °C/°F	Actual boiler water temperature
5 50 °C/°F	Actual DHW temperature
▲ 263572 h	Burner hours run (after a service, reset with ⊕ to "0")
▲▲▲ 030529	Burner starts (after a service, reset with ⊕ to "0")

Weather-compensated control unit

Press the following keys:

1. ⓘ "Select heating circuit" is displayed.

2. OK to confirm; wait approx. 4 s.

3. ⓘ press again.

4. ⊕/⊖ for the required operating condition.

5. OK Scanning is completed.

The following operating conditions can be scanned, subject to the actual system equipment level for heating circuit A1 and heating circuit with mixer M2:

Display screen	Explanation
Subscriber no.	Programmed subscriber no. in the LON system
Holiday program	If a holiday program has been entered
Departure date	Date
Return date	Date
Outside temperature, ... °C	Actual value
Boiler water temp., ... °C	Actual value
Flow temperature, ... °C	Actual value (only for mixer circuit M2)

Scanning operating conditions and sensors (cont.)

Display screen	Explanation
Standard room temperature, ... °C	Set value
Room temperature, ... °C	Actual value
Ext. set room temp, ... °C	For external hook-up
DHW temperature, ... °C	Actual DHW temperature
Mixed flow temp., ... °C	Actual value, only with low loss header
Burner, ...h	Actual hours run
Burner starts, ...	Hours run and burner starts (reset after maintenance with ⊕ to "0").
Time	
Date	
Burner OFF/ON	
Int. pump OFF/ON	Output 20
Int. output OFF/ON	Cylinder primary pump
Heating circuit pump OFF/ON	If an external extension or extension kit for one heating circuit with mixer is installed
Central fault message OFF/ON	If an external extension is installed
Mixer OPEN/CLOSE	If an extension kit for one heating circuit with mixer is installed
Various languages	The respective languages can be selected as permanent display language with OK

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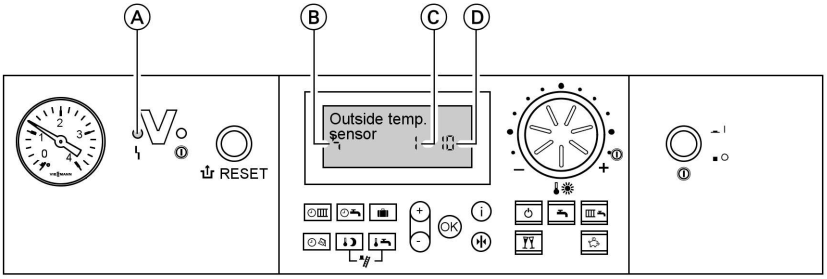
Fault display

Fault display layout



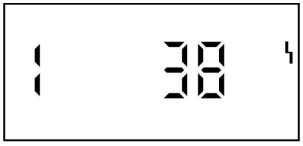
Ⓐ Fault display
Ⓑ Fault symbol
Ⓒ Fault number
Ⓓ Fault code

The red fault indicator flashes for every fault.

A fault in the burner control unit causes the display to show "⚠".

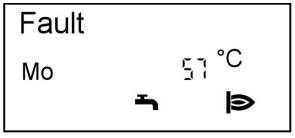
Constant temperature control unit

In case of faults, the fault code and fault symbol flashes on the programming unit display



Weather-compensated control unit

The display flashes "Fault" if a fault message is issued



Plain text fault displays:
- Burner module
- Oudoor sensor
- Supply sensor
- Boiler sensor
- Comm.supply sens.
- Flue gas sensor
- DHW outlet sensor
- Room sensor

Fault display (cont.)

- Remote control
- Fault participant

Checking and acknowledging faults

Note
If an acknowledged fault is not removed, the fault message will be re-displayed:
- *With a constant temperature control unit after 24 h*
- *With a weather-compensated control unit at 7:00 h the next day*

Constant temperature control unit

Press the following keys:

1. ⊕/⊖ for further fault codes.

2. OK All fault messages are acknowledged simultaneously, the fault display will be deleted and the red fault indicator continues to flash.

Weather-compensated control unit

Press the following keys:

1. ⓘ for the current fault.

2. ⊕/⊖ for further fault messages.

3. OK All fault messages are acknowledged simultaneously, the fault display will be deleted and the red fault indicator continues to flash.

Calling up acknowledged fault messages

Press the following keys:

1. OK approx. 2 s.

2. ⊕/⊖ for the acknowledged fault.

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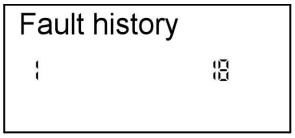
Fault display (cont.)

Calling up fault codes from the fault memory (fault history)

The 10 most recent faults are saved and may be scanned.
The faults are ordered by date, thus the most recent fault is fault number 1.



Press the following keys:

1. + OK simultaneously for approx. 2 s.
2. ⊕/⊖ for individual fault codes.
3. ***Note***
   All saved fault codes can be deleted with ⊕.
4. OK Scanning is completed.

Fault codes

Fault code on the display	Const.	weath.-comp.	System characteristics	Cause	Measures
0F	X	X	Control mode	Service	Service the equipment. After the service, set coding address "24:0".
10		X	Regulates as if the outside temperature was 0 °C	Outside temperature sensor shorted out	Check the outside temperature sensor (see page 87)
18		X	Regulates as if the outside temperature was 0 °C	Outside temperature sensor lead broken	Check the outside temperature sensor (see page 87)
20	X	X	Regulates without flow temperature sensor (low loss header)	System flow temperature sensor shorted out	Check the low loss header sensor (see page 89)

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Fault codes (cont.)

Fault code on the display	Const.	weath.-comp.	System characteristics	Cause	Measures
28	X	X	Regulates without flow temperature sensor (low loss header)	System flow temperature sensor lead broken	Check the low loss header sensor (see page 89)
30	X	X	Burner blocked	Boiler water temperature sensor shorted out	Check the boiler water temperature sensor (see page 89)
38	X	X	Burner blocked	Boiler water temperature sensor lead broken	Check the boiler water temperature sensor (see page 89)
40		X	Mixer closes	Heating circuit with mixer M2 flow temperature sensor shorted out	Check flow temperature sensor
48		X	Mixer closes	Heating circuit M2 flow temperature sensor lead broken	Check flow temperature sensor
50	X	X	No DHW heating	Cylinder temperature sensor shorted out	Check sensors (see page 89)
51	X	X	No DHW heating	Outlet temperature sensor shorted out	Check sensors (see page 89)
58	X	X	No DHW heating	Cylinder temperature sensor lead broken	Check sensors (see page 89)

Fault codes (cont.)

Fault code on the display	Const.	weath.-comp.	System characteristics	Cause	Measures
59	X	X	No DHW heating	Outlet temperature sensor lead broken	Check sensors (see page 89)
A2		X	Emergency mode with insufficient system pressure, triggered by code "0d" (see page 49)	System pressure too low	Top up with water
A4		X	Control mode	Max. system pressure exceeded	Check system pressure. Check the function and sizing of the diaphragm expansion vessel. Vent the heating system. Code "0E" is set to 1 to document the fault. After the fault has been removed, reset manually to 0.
A7		X	Control mode as per delivered condition	Faulty programming unit	Replace programming unit
A8		X	Burner blocked. The venting program is started automatically (see page 46)	Air lock in the internal circulation pump or minimum flow rate not achieved	Vent the system if the fault message continues to be displayed

Fault codes (cont.)

Fault code on the display	Const.	weath.-comp.	System characteristics	Cause	Measures
A9		X	The burner operates at its lower output if a heating circuit with mixer is connected. The burner is blocked if only one heating circuit without mixer is connected.	Internal circulation pump blocked	Check the circulation pump
b0	X	X	Burner blocked	Flue gas temperature sensor shorted out	Check the flue gas temperature sensor
b1	X	X	Control mode as per delivered condition	Communication error, programming unit	Check connections and replace the programming unit, if required
b4	X	X	Regulates as if the outside temperature was 0 °C	Internal fault	Replace the control unit
b5	X	X	Control mode as per delivered condition	Internal fault	Replace the control unit
b7	X	X	Burner blocked	Boiler coding card fault	Plug in boiler coding card or replace, if faulty
b8	X	X	Burner blocked	Flue gas temperature sensor lead broken	Check the flue gas temperature sensor
bA		X	Mixer M2 regulates to a flow temperature of 20 °C.	Communication fault – extension kit for heating circuit M2	Check the extension kit connections and coding. Start the extension kit.

Fault codes (cont.)

Fault code on the display	Const.	weath.-comp.	System characteristics	Cause	Measures
bC		X	Control mode without remote control	Communication fault – Vitotrol remote control, heating circuit A1	Check connections, cable, coding address "A0" and remote control DIP switches (see page 114).
bd		X	Control mode without remote control	Communication fault, Vitotrol remote control, heating circuit M2	Check connections, cable, coding address "A0" and remote control DIP switches (see page 114).
bE		X	Control mode	Vitotrol remote control incorrectly programmed	Check remote control DIP switch setting (see page 114)
bF		X	Control mode	Incorrect LON communication module	Replace the LON communication module
C5	X	X	Control mode, max. pump speed	Communication fault, variable speed internal pump	Check the setting of coding address "30"
C6		X	Control mode, max. pump speed	Communication fault – external variable speed heating circuit pump, heating circuit M2	Check setting of coding address "E5"

Fault codes (cont.)

Fault code on the display	Const.	weath.-comp.	System characteristics	Cause	Measures
C7	X	X	Control mode, max. pump speed	Communication fault – external variable speed heating circuit pump, heating circuit A1	Check setting of coding address "E5"
Cd	X	X	Control mode	Communication fault Vitocom 100 (KM BUS)	Check connections, Vitocom 100 and coding address "95"
CE	X	X	Control mode	Communication fault – ext. extension	Check connections and coding address "2E"
CF		X	Control mode	Communication fault, LON communication module	Replace the LON communication module
dA		X	Control mode without room influence	Room temperature sensor, heating circuit A1 shorted out	Check the room temperature sensor, heating circuit A1
db		X	Control mode without room influence	Room temperature sensor, heating circuit with mixer M2 shorted out	Check the room temperature sensor, heating circuit with mixer M2

Fault codes (cont.)

Fault code on the display	Const.	weath.-comp.	System characteristics	Cause	Measures
dd		X	Control mode without room influence	Room temperature sensor, heating circuit A1 lead broken	Check the room temperature sensor, heating circuit A1 and the remote control DIP switch settings (see page 114)
dE		X	Control mode without room influence	Room temperature sensor, heating circuit with mixer M2 lead broken	Check the room temperature sensor, heating circuit with mixer M2 and the remote control DIP switch settings (see page 114)
E4	X	X	Burner blocked	Fault, supply voltage 24 V	Replace the control unit.
E5	X	X	Burner blocked	Fault – flame amplifier	Replace the control unit.
E6	X	X	Burner blocked	System pressure too low	Top up with water.
E8	X	X	Burner in a fault state	The ionisation current lies outside the permissible range	Check the ionisation electrode and cable. Press "↑ RESET".
E9	X	X	Burner in a fault state	The ionisation current lies outside the permissible range during calibration	Check the ionisation electrode and cable. Check the flue gas system for tightness. Press "↑ RESET".

Fault codes (cont.)

Fault code on the display	Const.	weath.-comp.	System characteristics	Cause	Measures
EA	X	X	Burner in a fault state	The ionisation current lies outside the permissible range during calibration	Check the ionisation electrode and cable. Press "↥ RESET".
Eb	X	X	Burner in a fault state	Heat draw-off repeatedly too low during calibration	Initiate heat draw-off and trigger manual calibration (see page 97) Press "↥ RESET".
EC	X	X	Burner in a fault state	The ionisation current lies outside the permissible range during calibration	Check the ionisation electrode and cable. Press "↥ RESET".
Ed	X	X	Burner in a fault state	Internal fault	Replace the control unit.
F0	X	X	Burner blocked	Internal fault	Replace the control unit.
F1	X	X	Burner in a fault state	Flue gas temperature limiter has responded.	Check the heating system fill level. Vent the system. Press "↥ RESET" after the flue gas system has cooled down.

▶▶

Fault codes (cont.)

Fault code on the display	Const.	weath.-comp.	System characteristics	Cause	Measures
F2	X	X	Burner in a fault state	The temperature limiter has responded.	Check the heating system fill level. Check the circulation pump. Vent the system. Check the temperature limiter and connecting cables. Press "RESET".
F3	X	X	Burner in a fault state	Flame signal is already present at burner start.	Check the ionisation electrode and connecting cable. Press "RESET".
F4	X	X	Burner in a fault state	No flame signal.	Check the ionisation electrode and cable, measure the ionisation current, check the gas pressure, check the gas train, ignition, ignition module, ignition electrodes and the condensate drain. Press "RESET".
F7	X	X	Burner blocked	Short circuit or water pressure sensor lead broken	Check the water pressure sensor and the interconnecting cable.

Fault codes (cont.)

Fault code on the display	Const.	weath.-comp.	System characteristics	Cause	Measures
F8	X	X	Burner in a fault state	The fuel valve closes too late.	Check the gas train. Check both control paths. Press "↥ RESET".
F9	X	X	Burner in a fault state	Fan speed too low during the burner start	Check the fan, check the fan cables and supply; check the fan control. Press "↥ RESET".
FA	X	X	Burner in a fault state	Fan not at standstill	Check the fan, fan connecting cables and fan control. Press "↥ RESET".
FC	X	X	Burner in a fault state	Gas train faulty or faulty modulation valve control; or flue gas path blocked	Check the gas train. Check the flue gas system. Press "↥ RESET".
Fd	X	X	Burner in a fault state	Burner control unit fault	Check ignition electrodes and connecting cables. Check whether a strong interference (EMC) field exists near the equipment. Press "↥ RESET". Replace control unit if the fault persists.

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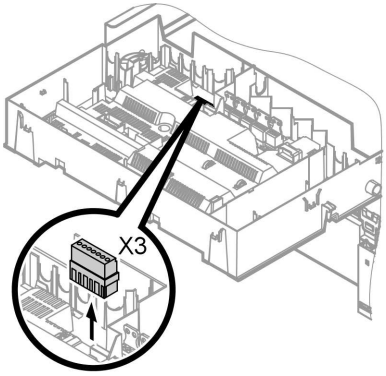
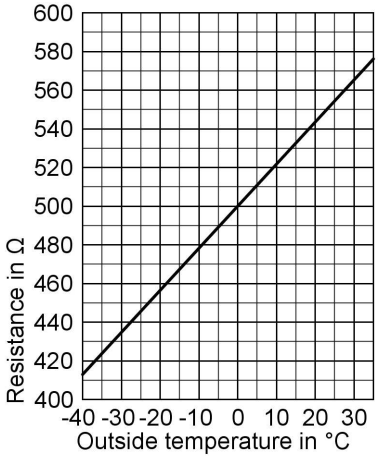
Fault codes (cont.)

Fault code on the display	Const.	weath.-comp.	System characteristics	Cause	Measures
FE	X	X	Burner blocked or in a fault state	Boiler coding card or main PCB faulty	Press "↑ RESET". Replace boiler coding card or control unit if the fault persists
FF	X	X	Burner blocked or in a fault state	Internal fault or "↑ RESET" key blocked	Start the equipment again. Replace the control unit if the equipment will not restart.

Repairs

Checking the outside temperature sensor (weather-compensated control unit)





1. Pull plug "X3" from the control unit.

Repairs (cont.)

2. Test the resistance of the outside temperature sensor across terminals "X3.1" and "X3.2" on the disconnected plug and compare it with the curve.

3. Where actual values strongly deviate from the curve values, disconnect the wires at the sensor and repeat test immediately at the sensor.

4. Subject to result, replace the lead or the outside temperature sensor.

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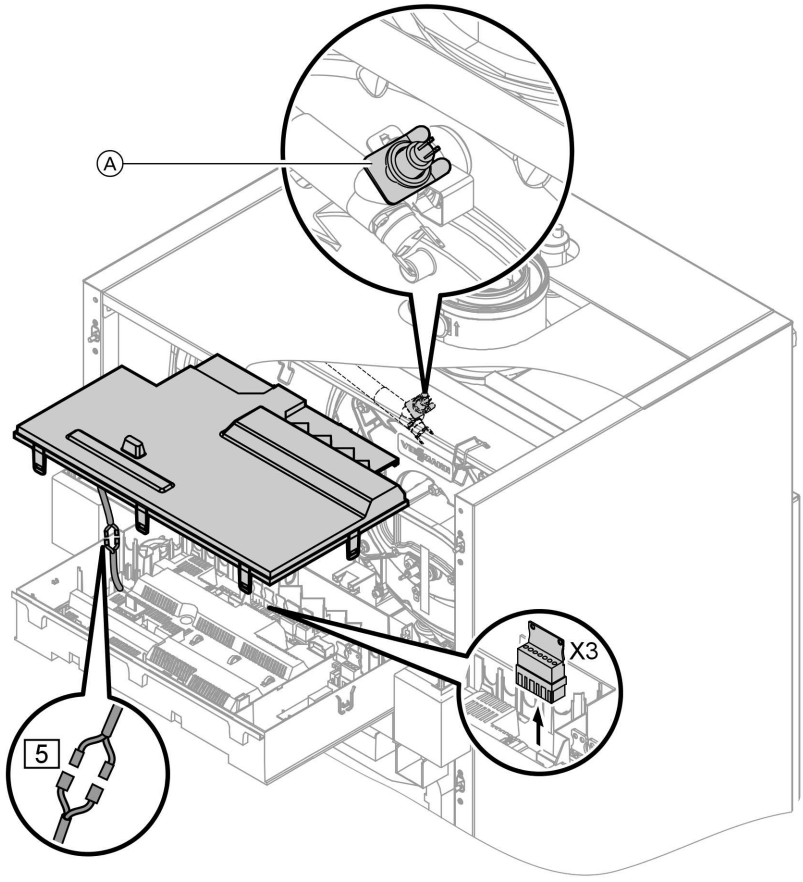
Repairs (cont.)

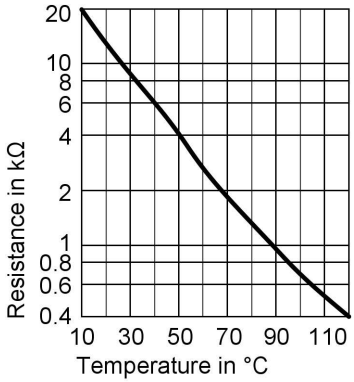
Checking the boiler temperature sensor, cylinder temperature sensor or flow temperature sensor for the low loss header



Repairs (cont.)

1. ■ **Boiler water temperature sensor**
   Pull the leads from boiler water temperature sensor Ⓐ and check the resistance.
   ■ **Cylinder temperature sensor**
   Pull plug [5] from the cable harness at the control unit and check the resistance.
   ■ **Flow temperature sensor**
   Pull plug "X3" from the control unit and check the resistance across terminals "X3.4" and "X3.5".

2. Check the sensor resistance and compare the actual values with the curve.



3. Replace the sensor in case of severe deviation.

Danger
The boiler water temperature sensor is immersed in the heating water (risk of scalding).
Drain the boiler before replacing the sensor.

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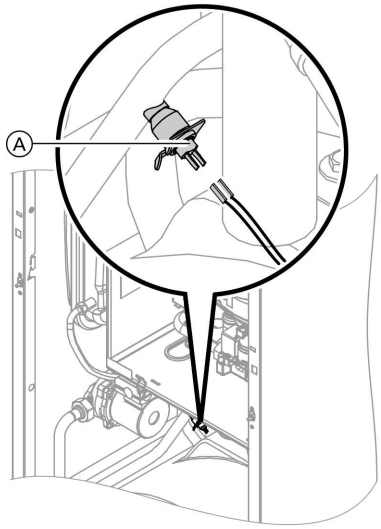
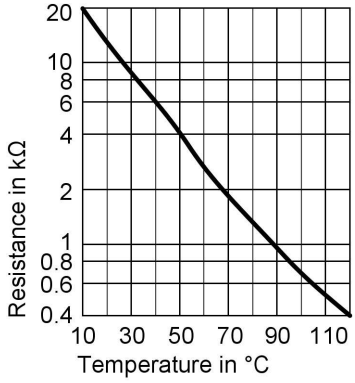
Repairs (cont.)

Checking the outlet temperature sensor



1. Pull the leads from outlet temperature sensor Ⓐ.



2. Check the sensor resistance and compare it with the curve.

3. Replace the sensor in case of severe deviation.

Danger
The outlet temperature sensor is immersed in the DHW (risk of scalding).
Drain the DHW side of the boiler before replacing the sensor.

Check the flue gas temperature sensor

The flue gas temperature sensor locks out the boiler when the permissible flue gas temperature is exceeded. Reset the interlock after the flue gas system has cooled down by pressing "↑ RESET".

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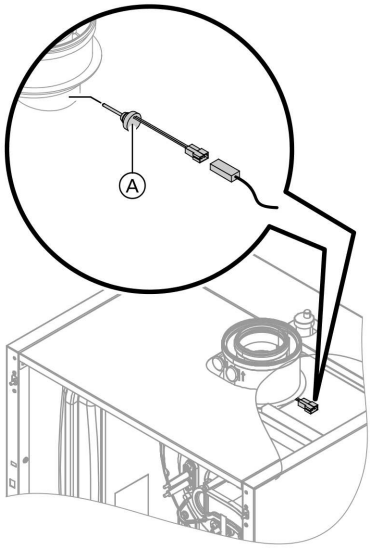
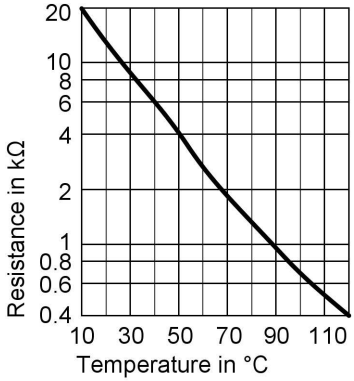
Repairs (cont.)



1. Pull the leads from flue gas temperature sensor Ⓐ.



2. Check the sensor resistance and compare it with the curve.

3. Replace the sensor in case of severe deviation.

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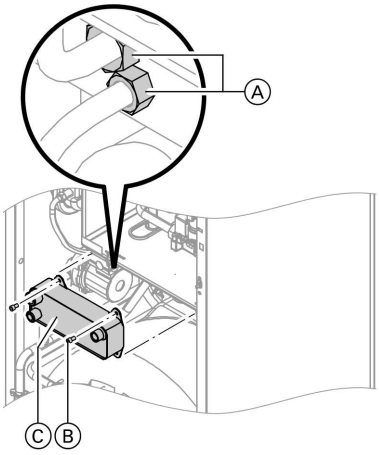
Repairs (cont.)

Checking the plate-type heat exchanger

Drain the boiler on its heating water and DHW side.
During removal, small amounts of water may trickle out and escape from the removed plate-type heat exchanger.



1. Shut off and drain the boiler on its heating water and DHW side.
2. Release side closures and pivot control unit forward (see page 11).
3. Remove the siphon (see page 12).
4. Release compression fittings Ⓐ, screws Ⓑ and pull out plate-type heat exchanger Ⓒ.
5. Check the connections on the heating water and DHW side for contamination and scaling; if required, replace the plate-type heat exchanger.
6. Lubricate the new gaskets/seals. Install in reverse order with new gaskets.

Checking the temperature limiter

If the burner control unit cannot be reset after a fault shutdown, although the boiler water temperature is below approx. 75 °C, check the following:

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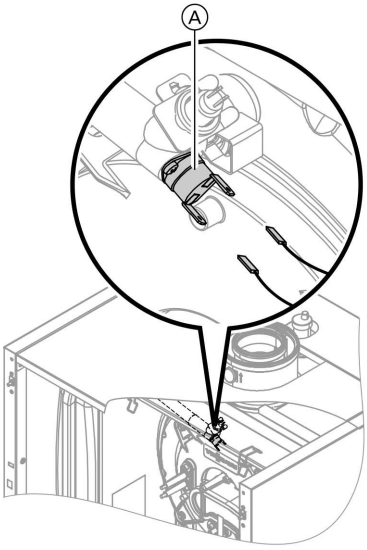
Repairs (cont.)



1. Pull the leads from temperature limiter Ⓐ.
2. Check the continuity of the temperature limiter with a multimeter.
3. Remove the faulty temperature limiter.
4. Coat the replacement temperature limiter with heat conducting paste and install it.
5. After commissioning, press reset button "↑ RESET" at the control unit.

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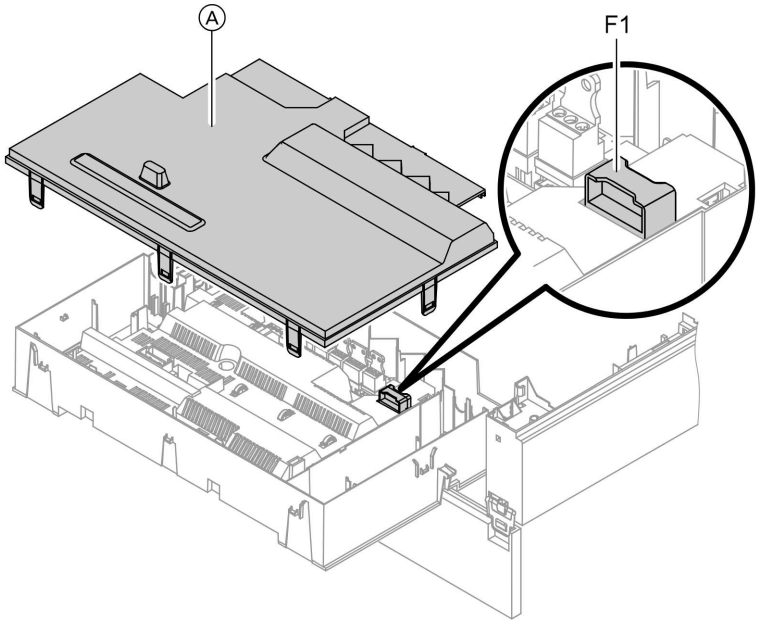
Repairs (cont.)

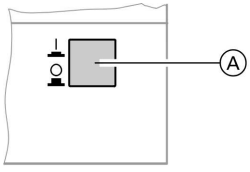
Checking the fuse



1. Switch OFF the power.
2. Release the side closures and pivot the control unit down.
3. Remove cover Ⓐ.
4. Check fuse F1 (see connection and wiring diagram).

Extension kit for heating circuit with mixer

Checking the rotational direction of the mixer motor



1. Switch ON/OFF switch Ⓐ at the extension kit first OFF and then ON again. The device will carry out the following self-test:
   - Mixer "Close" (150 s)
   - Pump "ON" (10 s)
   - Mixer "Open" (10 s)
   - Mixer "Close" (10 s)

Repairs (cont.)

Then standard control mode resumes.

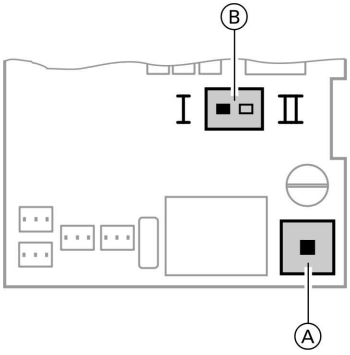
2. Note the rotational direction of the mixer motor during its self-test. Then set the mixer manually to "Open" again.

Note
The flow temperature sensor must now capture a higher temperature. If the temperature drops, either the motor is turning in the wrong direction or the mixer set is incorrectly fitted.

Mixer installation instructions

Changing the rotational direction of the mixer motor (if required)

Danger
An electric shock can be life-threatening.
Before opening the equipment, switch OFF the ON/OFF switch and mains voltage, for example at the fuse or the main isolator.



1. Remove the lower and upper housing cover of the extension kit.

Extension kit installation instructions

Ⓐ ON/OFF switch
Ⓑ Rotational direction switch

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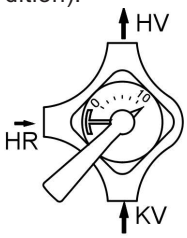
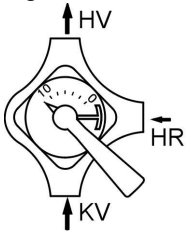
Repairs (cont.)

2. Change over the rotational direction switch:

Switch position I for central heating return from the left (delivered condition).



Switch position II for central heating return from the right.



Checking the Vitotronic 200-H (accessories)

The Vitotronic 200-H is connected to the control unit via the LON cable. To test the connection, carry out a subscriber check at the boiler control unit (see page 42).

Changing the combustion control parameters

The parameters are changed via the coding addresses in code 2.

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Repairs (cont.)

Calling up coding addresses

1. Press [⌂] and [≡⌂] simultaneously for approx. 2 s; confirm with (OK).

2. Select required coding address "11" with ⊕ or ⊖; the address flashes; confirm with (OK); the value flashes.

3. Adjust value "9" with ⊕ or ⊖; confirm with (OK). The green ON indicator flashes.
   Access to the coding addresses of the parameters is open.

4. Select the required coding address with ⊕ or ⊖ (see the following table) and change the value.

5. To exit, set the value of coding address 11≠ 9; then press [⌂] and [≡⌂] simultaneously for approx. 1 s. Coding has been terminated.

   Note
   If setting the parameters is not concluded via coding address 11, the system automatically terminates the parameter change after approx. 25 min.

Coding

Coding in the delivered condition		Possible change	
Burner			
7d:0	Air factor correction 0	7d:–5 to 7d:10	***Note*** *A change is only possible if manual calibration was first carried out via coding address "85".* Air factor correction adjustable from – 5 to 10. Each step represents an air factor modification of approx. 0.01.
82:0	Operation with natural gas	82:1	Operation with LPG
83:0	Correction, ignition start gas volume 0%	83:–10 to 83:+20	Correction, ignition gas volume adjustable from – 10 to +20%.
84:0	Start capacity correction 0 %	84:–8 to 84:7	Start capacity correction adjustable from -16 to +14 %. One step equals 2 %.

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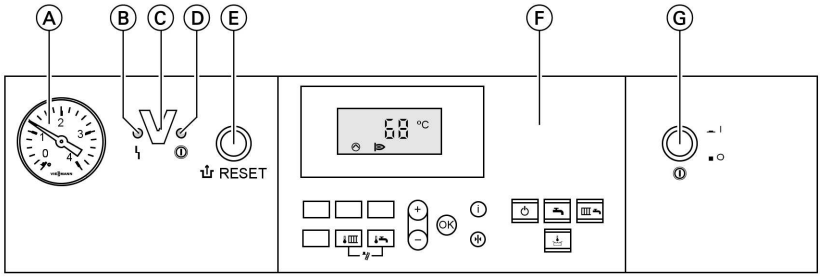
Repairs (cont.)

Coding in the delivered condition		Possible change	
85:0	Standard mode	85:1	Manual calibration of the combustion control unit. The red fault indicator also flashes during calibration. The process has terminated when the red indicator no longer flashes (after approx. 1 min). The air factor can then be manually altered in coding address "7d". ***Note*** *Heat must be drawn off during manual calibration.*

Constant temperature control unit

Control and display elements



Ⓐ Pressure gauge
Ⓑ Fault indicator (red)
Ⓒ Optolink interface
only in conjunction with the diagnostic adaptor (accessory) and Vitosoft (accessory)
Ⓓ ON indicator (green)
Ⓔ Reset button
Ⓕ User interface
Ⓖ ON/OFF switch

Keys at the user interface:

- Set boiler water temperature
- Set DHW temperature
- Emissions test function
- Standby mode
- DHW only
- Heating and DHW
- No function
- Setting values
- Confirmation
- Information
- Standard settings (Reset)

Heating operation

The selected set boiler water temperature will be maintained when a demand is being raised by the room thermostat and the heating program is set to DHW and central heating "". The boiler water temperature will be maintained at the default frost protection temperature when there is no demand.

The electronic temperature limiter inside the burner control unit limits the boiler water temperature to 82 °C. Flow temperature setting range: 40 to 74 °C.

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Constant temperature control unit (cont.)

Heating the DHW primary cylinder from cold

The heating circuit pump is switched ON and the three-way diverter valve will be changed over, if the cylinder temperature sensor captures a temperature lower than the defaulted set temperature.

- The cylinder primary pump is switched ON if the boiler water temperature ≥ set DHW temperature.
- The burner is switched ON if the boiler water temperature ≤ set DHW temperature, and the cylinder primary pump is switched ON when the required boiler water temperature is reached.

The primary cylinder is heated up to the set DHW temperature. Heating stops when the set temperatures have been reached at the cylinder temperature sensor and at the outlet temperature sensor.
After heating, the cylinder primary pump and the three-way diverter valve remain ON for a further 30 s.

Boosting when DHW is drawn off

When DHW is drawn off, cold water enters at the bottom of the primary cylinder.
The heating circuit pump is switched ON and the three-way diverter valve is changed over, if the cylinder temperature sensor recognises a temperature lower than the set temperature.

- The cylinder primary pump is switched ON if the boiler water temperature ≥ set DHW temperature.
- The burner is switched ON if the boiler water temperature ≤ set DHW temperature, and the cylinder primary pump is switched ON when the required boiler water temperature is reached.

The DHW is controlled to the specified temperature via the cylinder temperature sensor.
The primary cylinder continues to be heated up after the draw off process has terminated, until the set DHW temperature has been reached at the cylinder temperature sensor.
The cylinder primary pump and the three-way diverter valve remain ON for a further 30 s.

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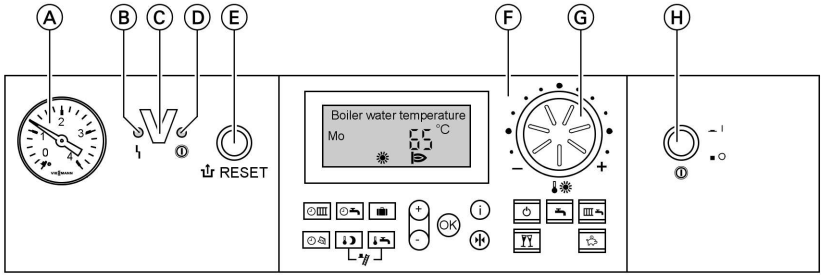
Weather-compensated control unit

Control and display elements



Ⓐ Pressure gauge
Ⓑ Fault indicator (red)
Ⓒ Optolink interface
only in conjunction with the diagnostic adaptor (accessory) and Vitosoft (accessory)
Ⓓ ON indicator (green)
Ⓔ Reset button
Ⓕ User interface
Ⓖ Rotary selector for standard room temperature
Ⓗ ON/OFF switch

Keys at the user interface:

- Central heating time program
- DHW heating and DHW circulation pump time programs (if connected to the control unit)
- Holiday program
- Time/date
- Reduced room temperature
- Set DHW temperature
- Emissions test function
- Standby mode
- DHW only
- Heating and DHW
- Party mode
- Economy mode
- Setting values
- Confirmation
- Information
- Standard settings (Reset)

Heating operation

The control unit determines a set boiler water temperature subject to outside temperature or room temperature (if a room temperature-dependent remote control is connected) and to the slope/level of the heating curve.

The determined set boiler water temperature is transferred to the burner control unit. From the set and actual boiler water temperatures, the burner control unit calculates the modulation level and regulates the burner accordingly.

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Weather-compensated control unit (cont.)

The electronic temperature limiter inside the burner control unit limits the boiler water temperature to 82 °C.

Heating the DHW primary cylinder from cold

The heating circuit pump is switched ON and the three-way diverter valve will be changed over, if the cylinder temperature sensor captures a temperature lower than the defaulted set temperature.

- The cylinder primary pump is switched ON if the boiler water temperature ≥ set DHW temperature.
- The burner is switched ON if the boiler water temperature ≤ set DHW temperature, and the cylinder primary pump is switched ON when the required boiler water temperature is reached.

The primary cylinder is heated up to the set DHW temperature. Heating stops when the set temperatures have been reached at the cylinder temperature sensor and at the outlet temperature sensor.
After heating, the cylinder primary pump and the three-way diverter valve remain ON for a further 30 s.

Boosting when DHW is drawn off

When DHW is drawn off, cold water enters at the bottom of the primary cylinder.
The heating circuit pump is switched ON and the three-way diverter valve is changed over, if the cylinder temperature sensor recognises a temperature lower than the set temperature.

- The cylinder primary pump is switched ON if the boiler water temperature ≥ set DHW temperature.
- The burner is switched ON if the boiler water temperature ≤ set DHW temperature, and the cylinder primary pump is switched ON when the required boiler water temperature is reached.

The DHW is controlled to the specified temperature via the cylinder temperature sensor.
The primary cylinder continues to be heated up after the draw off process has terminated, until the set DHW temperature has been reached at the cylinder temperature sensor.

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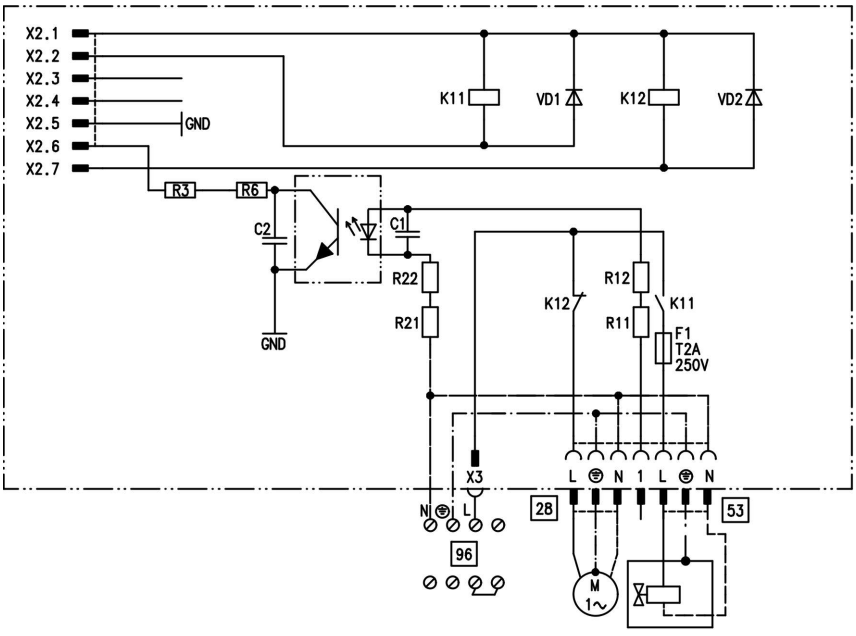
Weather-compensated control unit (cont.)

The cylinder primary pump and the three-way diverter valve remain ON for a further 30 s.

Internal extensions for external connections

Internal extension H1



The internal extension H1 is integrated into the control unit casing. The cylinder primary pump is connected to relay output [28].

An external safety valve can be connected to [53].

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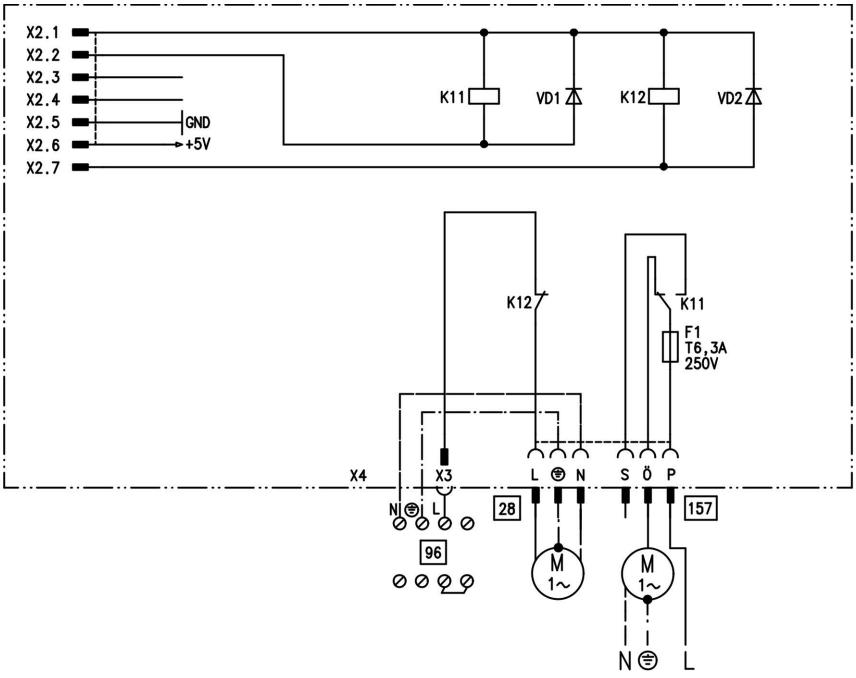
Internal extensions for external connections (cont.)

Internal extension H2 (accessories)



The internal extension H2 is integrated into the control unit casing instead of the internal extension H1. The cylinder primary pump is connected to relay output 28.

An external extractor interlock can be connected to 157.

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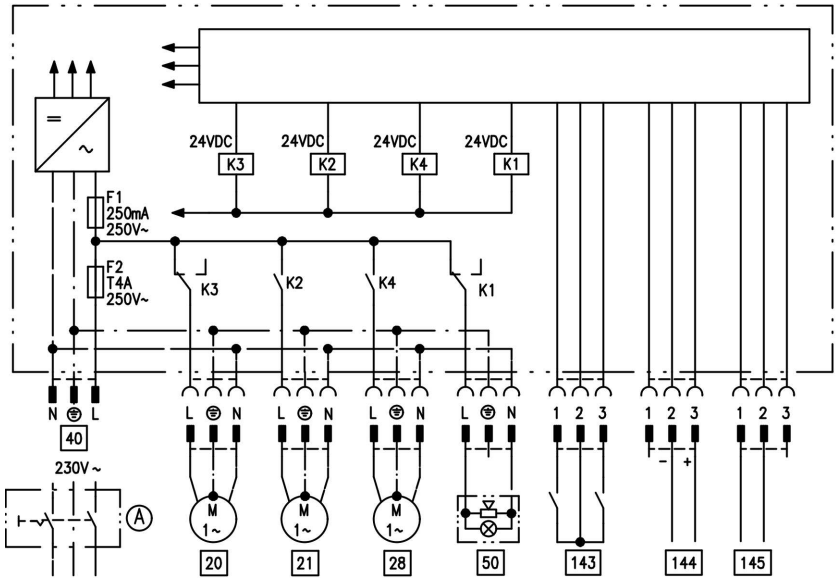
External extensions for external connections (accessories)

External extension H1



The external extension is connected to the boiler control unit via the KM BUS. The following functions can be controlled or processed simultaneously via the extension:

- Ⓐ ON/OFF switch (on site)
- [20] Heating circuit pump for the heating circuit without mixer
- [21] Cylinder primary pump
- [28] DHW circulation pump (only for weather-compensated operation)
- [40] Power supply
- [50] Central fault message
- [143] ■ External blocking (terminals 2 - 3)
  ■ External demand (terminals 1 - 2)
  ■ External heating program changeover (terminals 1 - 2) (only for weather-compensated operation)
  The allocation of the function "External heating program changeover" is set via coding address "91".
- [144] External set value 0 to 10 V
- [145] KM BUS

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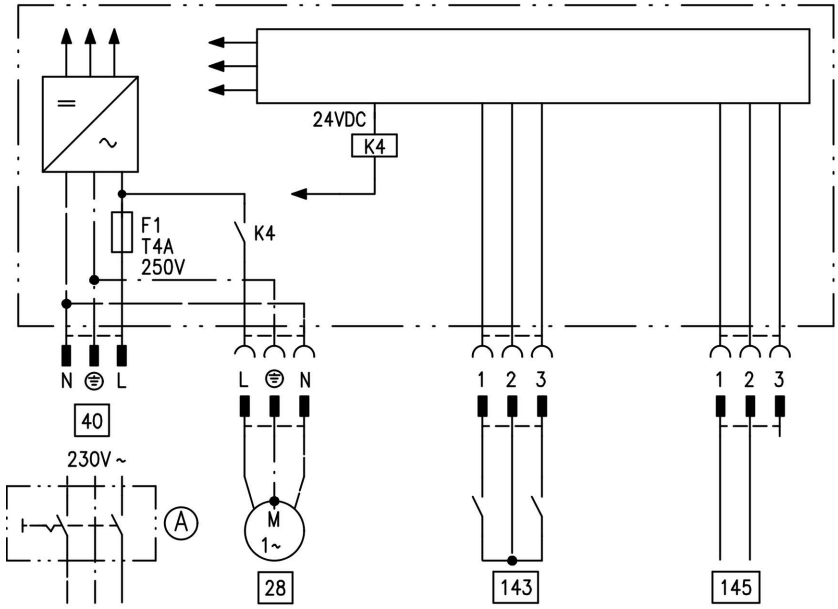
External extensions for external connections . . . (cont.)

External extension H2



The external extension is connected to the boiler control unit via the KM BUS. The following functions can be controlled or processed simultaneously via the extension:

- Ⓐ ON/OFF switch (on site)
- 28 DHW circulation pump (only for weather-compensated operation)
- 40 Power supply
- 143 ■ External blocking (terminals 2 - 3)
  ■ External demand (terminals 1 - 2)
  ■ External heating program changeover (terminals 1 - 2) (only for weather-compensated operation)
  The allocation of the function "External heating program changeover" is set via coding address "91".
- 145 KM BUS

Control functions

External heating program changeover

The "External heating program changeover" function is connected via external extension input "143". You can select which heating circuits the heating program changeover affects in coding address "91":

Heating program changeover	Coding
No changeover	91:0
Heating circuit without mixer A1	91:1
Heating circuit with mixer M2	91:2
Heating circuit without mixer and heating circuit with mixer	91:3

You can select in which direction the heating program changes over in coding address "D5":

Heating program changeover	Coding
Changeover towards "Permanently reduced" or "Permanent standby" mode (subject to the selected set value)	d5:0
Changeover towards "Constant heating mode"	d5:1

The duration of the heating program changeover can be adjusted in coding address "F2":

Heating program changeover	Coding
No heating program changeover	F2:0
Duration of the heating program changeover 1 to 12 hours	F2:1 to F2:12

The heating program changeover stays enabled for as long as the contact remains closed, but at least as long as the duration selected in coding address "F2".

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Control functions (cont.)

External blocking

The "External blocking" function is connected via external extension input "143".

In coding address "32" you can select the influence the "Ext. blocking" signal should have on the connected circulation pumps.

External demand

The "External demand" function is connected via external extension input "143".
In coding address "34" you can select the influence the "Ext. demand" signal should have on the connected circulation pumps.

The minimum set boiler water temperature in case of external demand is selected in coding address "9b".

Venting program

During the venting program, the circulation pump will be alternately switched ON and OFF for 30 s respectively over a period of 20 min.
For a certain period, the diverter valve is alternately set towards heating and DHW heating. The burner is switched OFF during the venting program.

The venting program is activated via code "2F:1". The program is automatically disabled after 20 min, and coding address "2F" is set to "0".

Fill program

In the delivered condition, the diverter valve is set to its central position, enabling the system to be filled completely. After switching ON the control unit, the diverter valve no longer goes into its central position.

Afterwards, the diverter valve can be moved via code "2F:2" into the central position. In this position, the control unit can be switched OFF, and the system can be filled completely.

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Control functions (cont.)

Filling with the control unit switched ON

If the system is to be filled with the control unit switched ON, the diverter valve will be moved to its central position via code "2F:2" and the pump will be started.

The burner shuts down if this function is enabled via coding address "2F". The program is automatically disabled after 20 min, and coding address "2F" is set to "0".

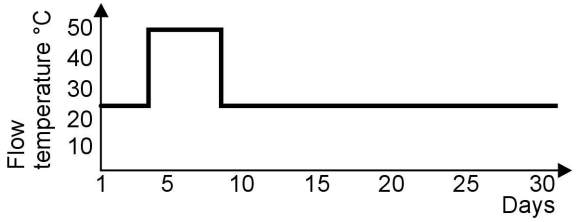
Screed drying function

The screed function enables screeds to be dried. For this, always observe the details specified by the screed manufacturer.
When the screed drying function is activated, the heating circuit pump of the mixer circuit is switched ON and the flow temperature will be held at the selected profile. After completion (30 days), the mixer circuit will again be regulated automatically via the set parameters.
Observe EN 1264. The report to be provided by the heating contractor must contain the following heat-up details:

- Heat-up data with respective flow temperatures
- Max. flow temperature achieved
- Operating condition and outside temperature during handover

The various temperature profiles are adjustable via coding address "F1". The function continues after power failure or after the control unit has been switched OFF. "Heating and DHW" will be started after the screed drying function has been terminated or if code "F1:0" is manually adjusted.

Temperature profile 1: (EN 1264-4) code "F1:1"



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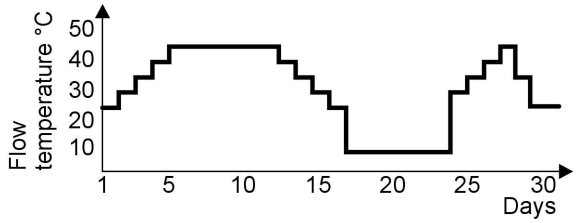
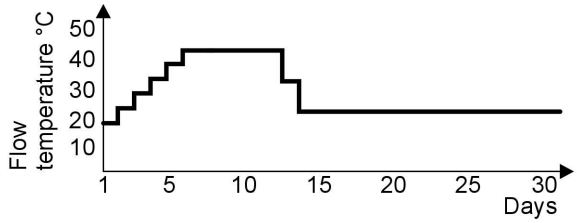
Control functions (cont.)

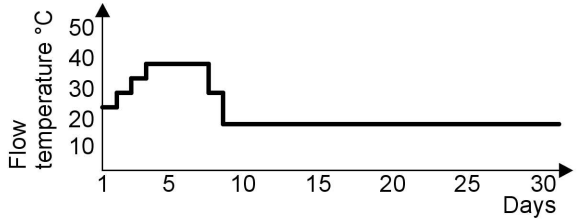
Temperature profile 2: (ZV parquet and flooring technology) code "F1:2"



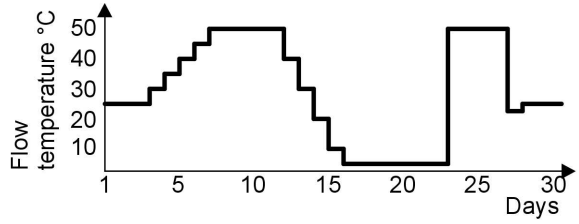
Temperature profile 3: Code "F1:3"



Temperature profile 4: Code "F1:4"



Temperature profile 5: Code "F1:5"



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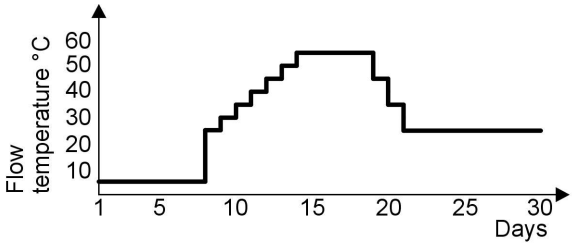
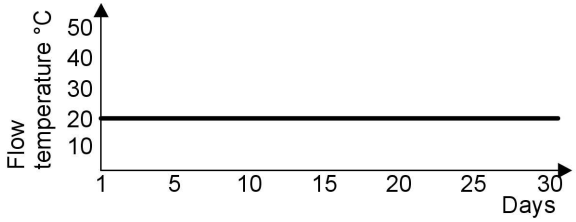
Control functions (cont.)

Temperature profile 6: Code "F1:6"



Temperature profile 7: Code "F1:15"



Raising the reduced room temperature

During operation with reduced room temperature, the reduced set room temperature can be automatically raised subject to the outside temperature. The temperature is raised in accordance with the selected heating curve, but no higher than the set standard room temperature.

The outside temperature limits for the start and end of the temperature raising can be adjusted via coding addresses "F8" and "F9".

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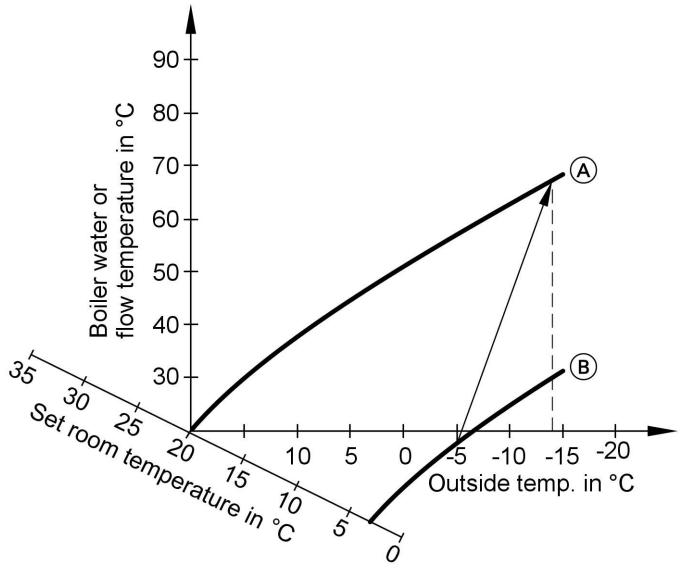
Control functions (cont.)

Example using the settings in the delivered condition



Ⓐ Heating curve for operation with standard room temperature

Ⓑ Heating curve for operation with reduced room temperature

Reducing the heat-up time

During the transition from operation with reduced room temperature to operation with standard room temperature, the boiler water or flow temperature will be raised in accordance with the selected heating curve. The boiler water or flow temperature can be automatically increased.

The value and duration of the additional increase of the set boiler water or flow temperature can be adjusted in coding addresses "FA" and "Fb".

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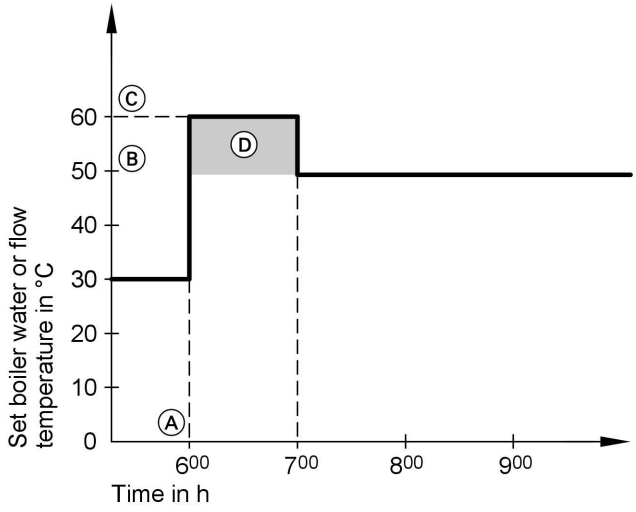
Control functions (cont.)

Example using the settings in the delivered condition



Ⓐ Start of operation with standard room temperature
Ⓑ Set boiler water or flow temperature in accordance with the selected heating curve
Ⓒ Set boiler water or flow temperature in accordance with coding address "FA":
50 °C + 20 % = 60 °C
Ⓓ Duration of operation with raised set boiler water or flow temperature in accordance with coding address "Fb":
60 min

Remote control DIP switches

The DIP switches are located on the PCB in the top part of the casing.

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Remote control DIP switches (cont.)

Remote control	DIP switch setting
The remote control affects the heating circuit without mixer A1	
The remote control affects the heating circuit with mixer M2	
When connecting a separate room temperature sensor, set DIP switch "3" to "ON".	

Electronic combustion control unit

The electronic combustion controller utilises the physical correlation between the level of the ionisation current and the air factor λ. For all gas qualities, the maximum ionisation current results with air factor 1.
The ionisation signal is evaluated by the combustion control unit, and the air factor is adjusted to between λ=1.24 and 1.44. This range provides for an optimum combustion quality. Thereafter, the electronic gas valve regulates the required gas volume subject to the prevailing gas quality.

To check the combustion quality, the CO_2 content or the O_2 content of the flue gas is measured. The actual values enable the prevailing air factor to be determined. The relationship between the CO_2 or O_2 content and air factor λ is illustrated in the following table.

Electronic combustion control unit (cont.)

Air factor λ – CO_2 /O_2 content

Air factor λ	O_2 content (%)	CO_2 content (%) for natural gas E	CO_2 content (%) for natural gas LL	CO_2 content (%) for LPG P
1.24	4.4	9.2	9.1	10.9
1.27	4.9	9.0	8.9	10.6
1.30	5.3	8.7	8.6	10.3
1.34	**5.7**	**8.5**	**8.4**	**10.0**
1.37	6.1	8.3	8.2	9.8
1.40	6.5	8.1	8.0	9.6
1.44	6.9	7.8	7.7	9.3

To achieve an optimum combustion control, the system regularly carries out an automatic self-calibration; also after a power failure (shutdown). For this, the combustion is briefly regulated to max. ionisation current (equals air factor λ=1). The automatic calibration is carried out shortly after the burner start and lasts approx. 5 s. During the calibration, higher than normal CO emissions may occur briefly.

The combustion control unit can also be calibrated manually. e.g. after maintenance or service work (coding address "85").

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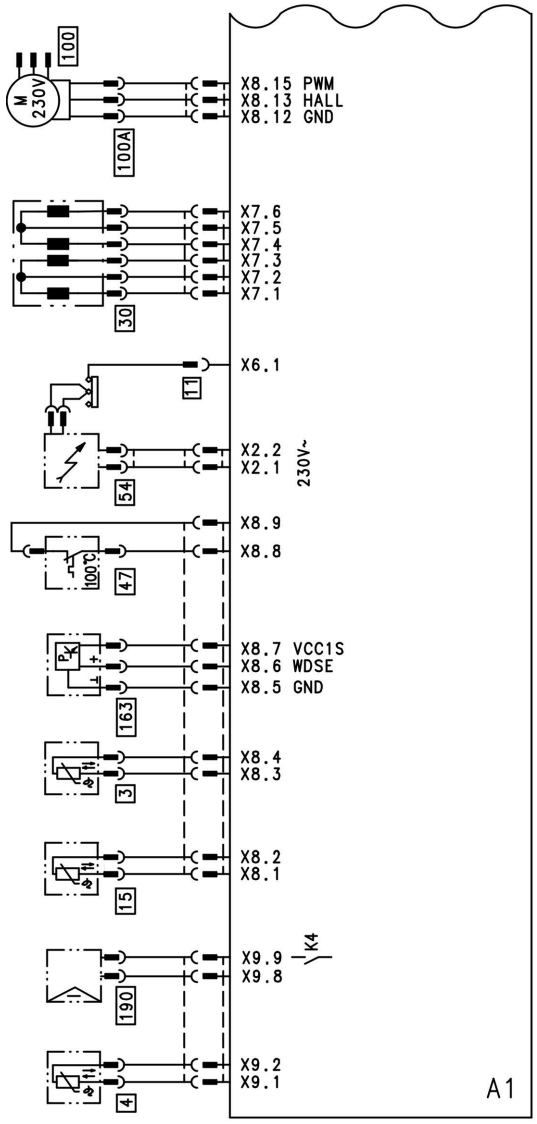
Connection and wiring diagram – internal connections



A1 Main PCB
X... Electrical interfaces

3 Boiler water temperature sensor
4 Outlet temperature sensor

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Connection and wiring diagram – internal . . . (cont.)

11	Ionisation electrode
15	Flue gas temperature sensor
30	Stepper motor for diverter valve
47	Thermocouple
54	Ignition unit
100	Fan motor
100A	Fan motor control
163	Water pressure sensor
190	Modulation coil

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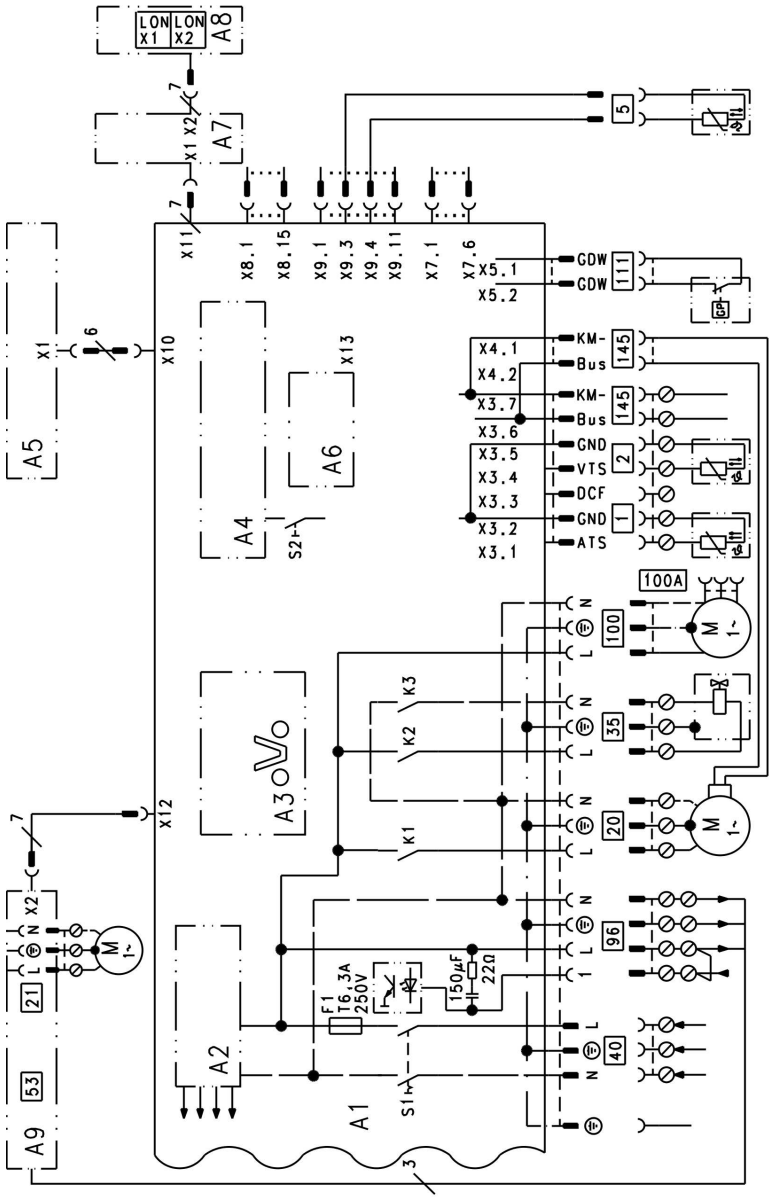
Connection and wiring diagram – external connections



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A1 Main PCB

A2 Power supply unit

Connection and wiring diagram – external . . . (cont.)

A3 Optolink
A4 Burner control unit
A5 Programming unit
A6 Coding card
A7 Connection adaptor
A8 LON communication module
A9 Internal extension H1
S1 ON/OFF switch
S2 Reset button
X... Electrical interfaces
[1] Outside temperature sensor
[2] Flow temperature sensor, low loss header
[5] Cylinder temperature sensor (plug on the cable harness)
[20] Internal circulation pump
[35] Gas solenoid valve
[40] Power supply
[96] Power supply accessories and Vitotrol 100
[100] Fan motor
[100]A Fan motor control
[111] Gas pressure limiter
[145] KM BUS

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Parts lists

Spare parts information
Quote the part and serial no. (see type plate) and the item number of the required part (as per this parts list). Obtain standard parts from your local supplier.

001 Heat exchanger connecting pipe with gaskets
002 Flow pipework
003 DHW connecting pipe
004 DHW connecting pipe
005 Connecting pipe, primary cylinder
006 Return connection pipe
007 Gas pipes
008 Primary cylinder with pos. 048 (3 pce.)
009 Siphon
010 Condensate hose 800 mm
011 Condensate pipe
012 Heat exchanger
013 Cap panel with silencer mat
016 Toggle fastener (set)
017 Boiler flue connection
018 Plug
019 Ventilation air gasket
020 Lip seal
021 Entry grommets, boiler connection (set)
022 Connection line; diaphragm expansion vessel
023 Diaphragm expansion vessel
024 Pressure gauge
025 Quick-acting air vent valve G⅜"
026 Overflow valve
027 Safety valve
028 Air vent valve G⅜"
029 Linear stepper motor
030 Non-return valve
031 Ball valve R ½" with handle
032 Gasket set; plug-in connector
033 Flat seal set
034 Set of plug connector retainers
035 Safety spring
036 Plate-type heat exchanger
037 Plate-type heat exchanger gasket set
040 Grommets (set)
041 Return unit
042 Connection elbow, return
043 Locking needle (5 pce.)
044 Clip (5 pce.)
045 Condensate collector
046 Condensate hose 1500 mm
047 Condensate hose 400 mm
048 Sleeve
052 Burner gauze assembly
053 Burner gauze assembly gasket
058 Fan outlet gasket
059 Fan
061 Gas train
062 Burner door
063 Ignition unit
070 Ionisation electrode gasket
071 Ignition electrode gasket
073 Gas nozzle
074 Venturi extension
100 Control unit
101 Back cover
102 Locking clips (10 pcs.)
103 Support
104 Pivot arm
105 Hinge pins (10 pce.)
106 Flap
107 Pressure gauge retainer
108 Clip (10 pce.)
109 Hinge (10 pce.)
110 Boiler coding card
111 Fuse 6.3 A slow (10 pce.)
112 Programming unit for constant temperature mode
113 Programming unit for weather-compensated mode
122 LON communication module (accessories)

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Parts lists (cont.)

123 PCB adaptor, LON module (accessories)
125 Fuse holder
126 Internal extension H1
150 Water pressure sensor
151 Outside temperature sensor
152 Cylinder temperature sensor
153 Flue gas temperature sensor
154 Thermocouple
155 Temperature sensor
200 Side panels
201 Front top panel
202 Top panel, back
203 Front panel, top
204 Front panel, bottom
205 Tie-bar
206 Adjustable foot
207 Fixing elements
300 Circulation pump (motor and casing)
301 Circulation pump motor
350 Seal washer
351 Strain relief
352 Gasket
354 Anode flange with gasket
355 Thermal insulation; flange

Wearing parts
050 Burner gasket
051 Insulation ring
054 Ignition electrode with gasket
055 Ionisation electrode with gasket
353 Magnesium anode Ø = 26 × 280/250

Parts not shown
038 Special grease
039 Heat conducting paste
072 Gasket G ¾" (5 pce.)
116 Cable harness X8/X9
117 Cable harness 100/35/54 (auxiliary earth)
118 Connecting cable, gas solenoid valve
119 Earth/ignition module cable harness
120 Power cable, stepper motor
121 Cable harness, ionisation/KM BUS, internal
126 Mating plug
127 Cable fixing
128 Anti-splash protection
208 Touch-up paint stick, Vitowhite
209 Spray paint, Vitowhite
400 Operating instructions for constant temperature mode
401 Operating instructions for weather-compensated mode
403 Installation instructions
404 Service instructions
405 LON communication module installation instructions
Ⓐ Type plate

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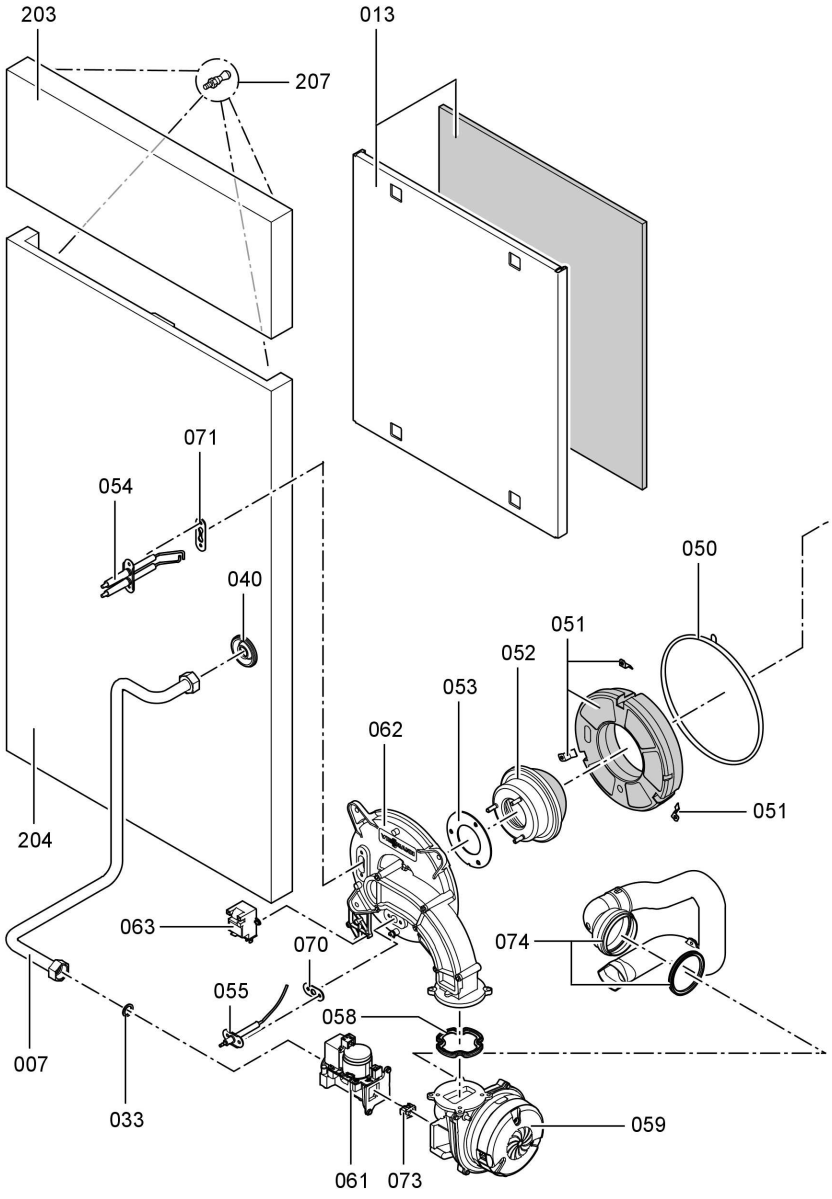
Parts lists (cont.)



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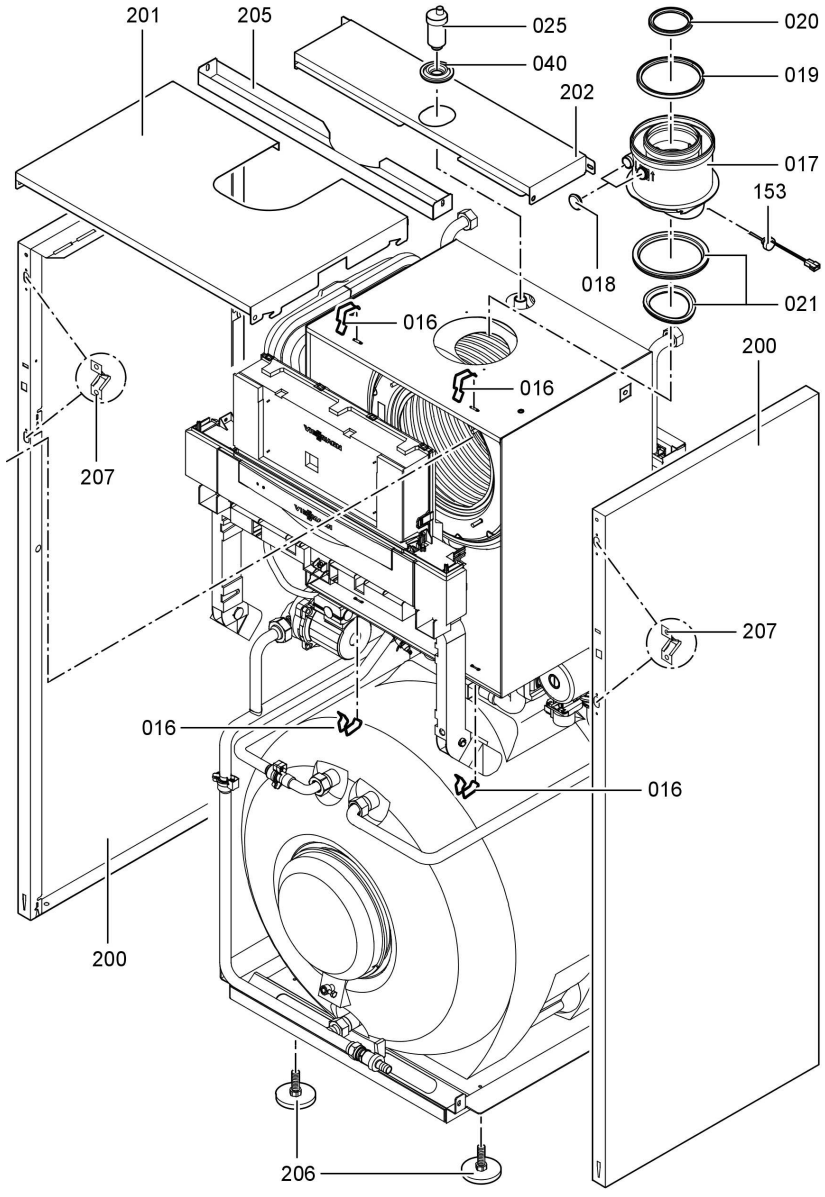
Parts lists (cont.)



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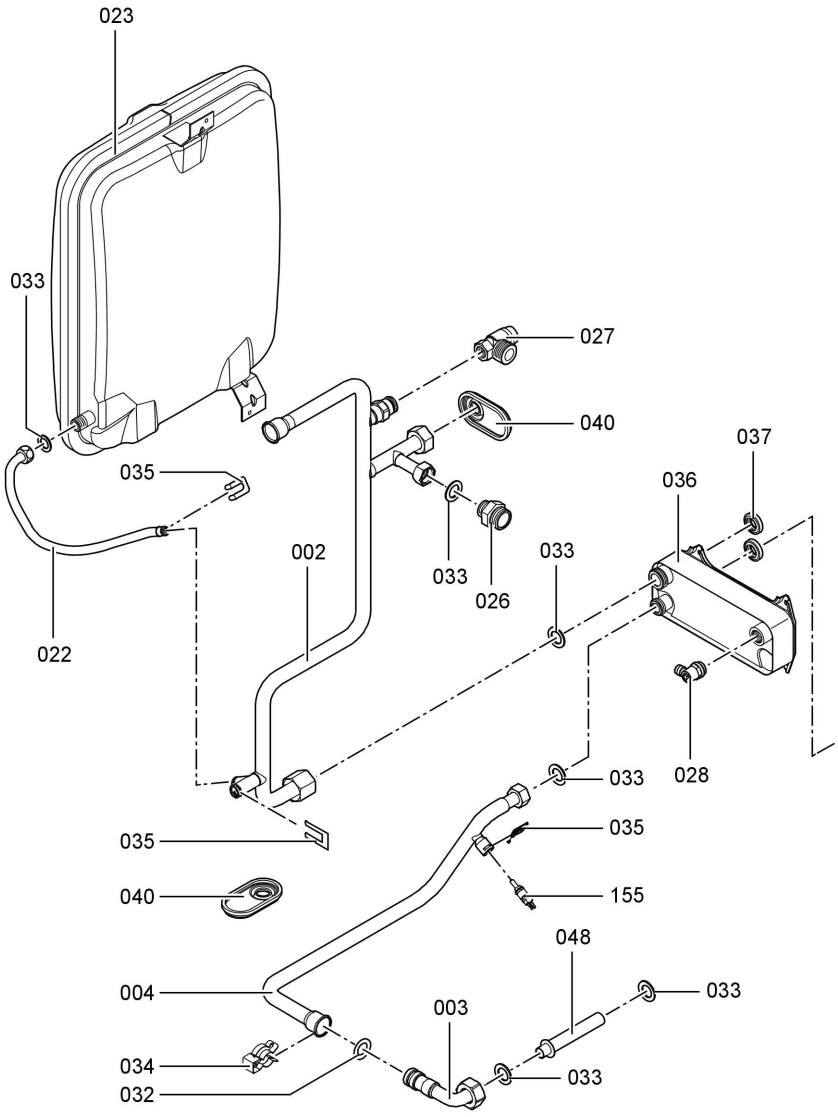
Parts lists (cont.)



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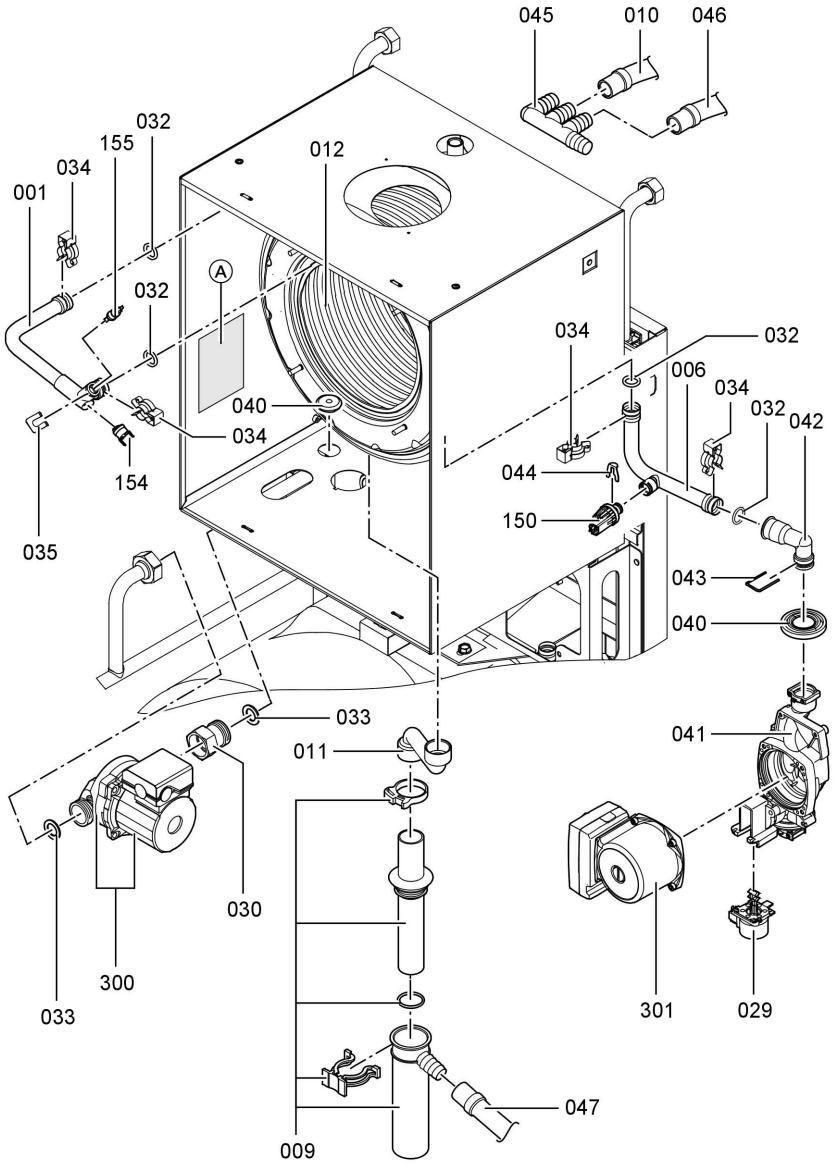
Parts lists (cont.)



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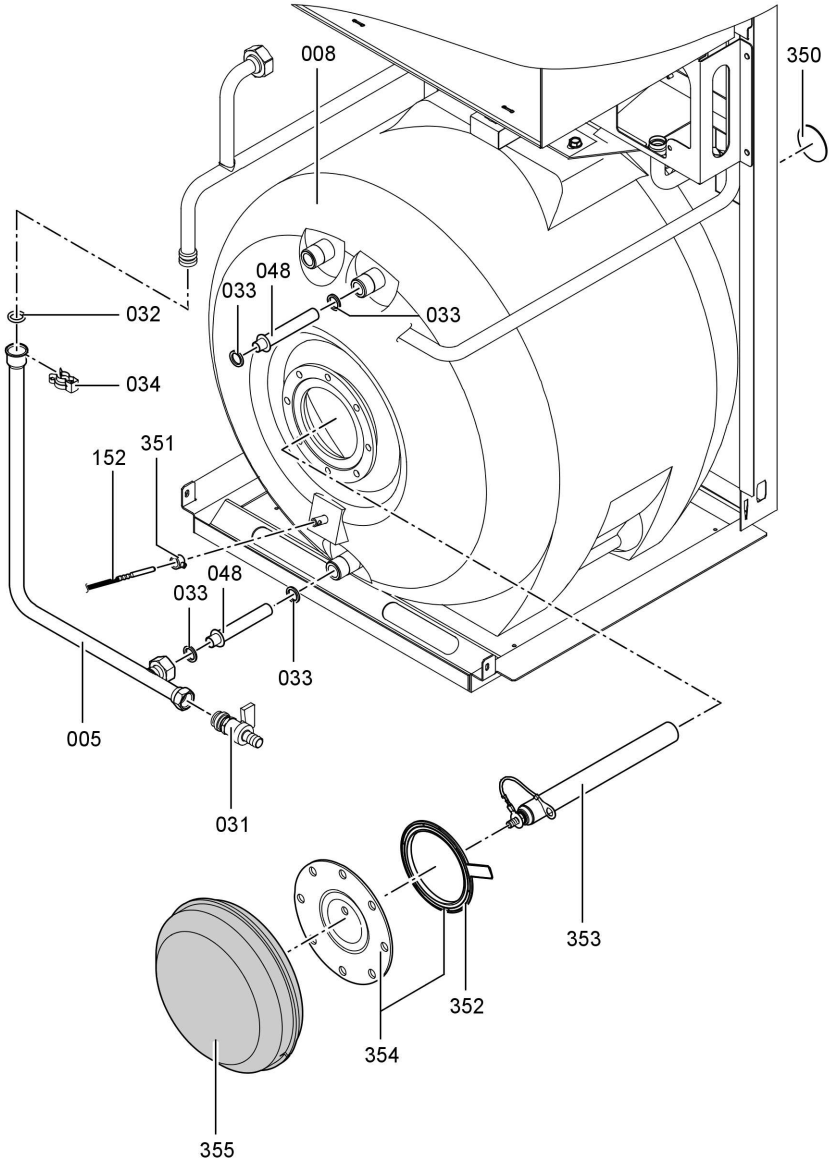
Parts lists (cont.)



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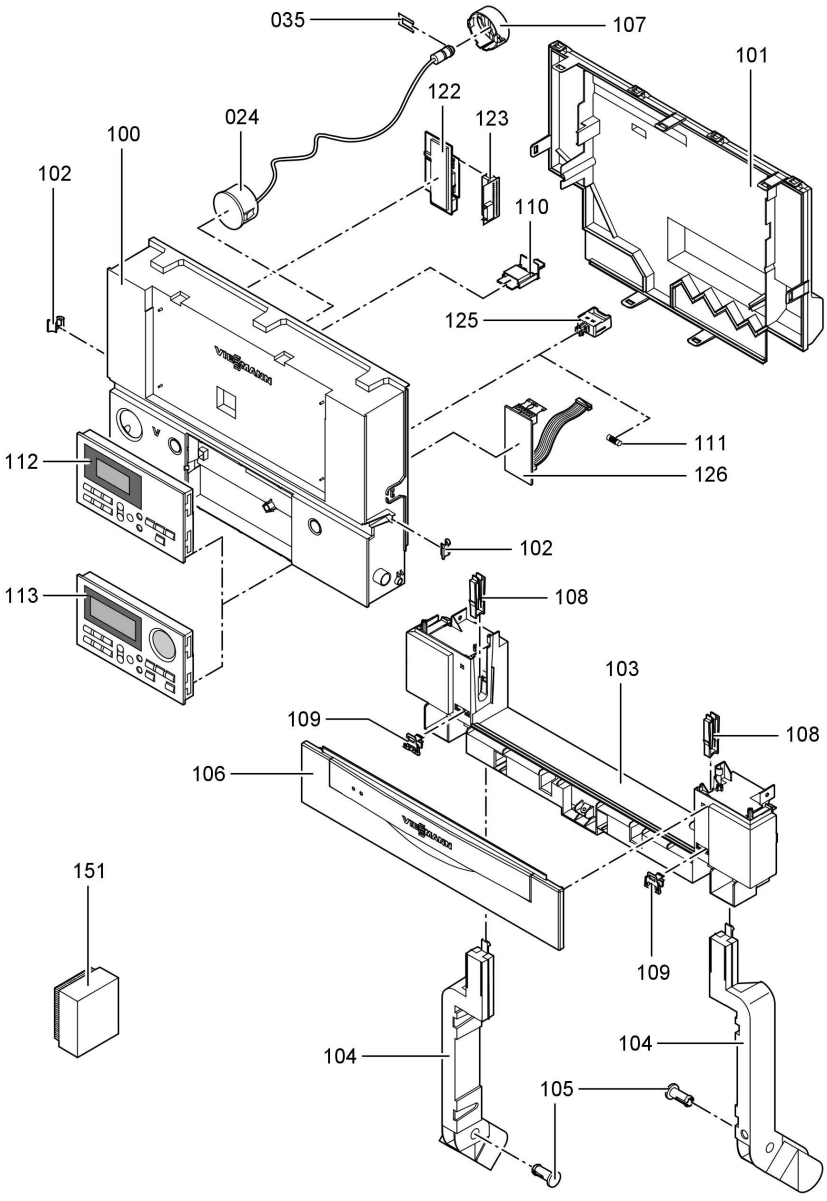
Parts lists (cont.)



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Commissioning/service reports

Setting and test values	Date: By:	Set value	Commissioning	Service
Static pressure	*mbar*	max. 57.5 mbar		
Supply pressure (flow pressure)				
☐ for natural gas E	*mbar*	17.4-25 mbar		
☐ for natural gas LL	*mbar*	17.4-25 mbar		
☐ for LPG	*mbar*	42.5-57.5 mbar		
Tick gas type				
Carbon dioxide content CO_2				
■ at lower output	*% by vol.*			
■ at upper output	*% by vol.*			
Oxygen content O_2				
■ at lower output	*% by vol.*			
■ at upper output	*% by vol.*			
Carbon monoxide content CO				
■ at lower output	*ppm*			
■ at upper output	*ppm*			

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Specification

Rated voltage	230 V
Rated frequency	50 Hz
Rated current	6 A
Protection class	I
Protection	IP X 4 D to EN 60529
Permissible ambient temperature	
■ during operation	0 to +40 °C
■ during storage and transport	-20 to +65 °C

Electronic temperature limiter setting	82 °C
Temperature limiter setting	100 °C (fixed)
Line fuse (mains)	max. 16 A–
Power consumption	160 W

Gas fired boilers

Rated output range T_V/T_R50/30 °C	**kW**	**3.8 to 13**	**3.8 to 19**	**5.2 to 26**
Rated thermal load range				
for central heating	kW	3.6 to 12.3	3.6 to 17.9	4.9 to 24.7
for DHW heating	kW	3.6 to 16.7	3.6 to 17.9	4.9 to 24.7
Connection values in relation to the max. load				
Natural gas E	m^3/h	1.77	1.89	2.61
Natural gas LL	m^3/h	2.05	2.20	3.04
LPG	kg/h	1.31	1.40	1.93
Product ID		CE-0085 BR 0433		

Note

The supply values are only for documentation purposes (e.g. in the gas contract application) or to estimate the supplementary volumetric settings. Because of factory settings, the gas pressure must not be altered from these settings. Reference: 15 °C, 1013 mbar.

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Declaration of conformity

Declaration of conformity for the Vitodens 333-F

We, Viessmann Werke GmbH&Co KG, D-35107 Allendorf, confirm as sole responsible body that the product **Vitodens 333-F** complies with the following standards:

DIN 4702-6
DIN 4753
EN 483
EN 625
EN 677
EN 806
EN 50 165
EN 55 014
EN 60 335
EN 61 000-3-2
EN 61 000-3-3

In accordance with the following Directives, this product is designated **CE-0085**:

97/23/EC
90/396/EEC
92/42/EEC
2004/108/EC
2006/ 95/EC

This product meets the requirements of the Efficiency Directive (92/42/EEC) for **condensing boilers**.

Allendorf, 12.01.07

Viessmann Werke GmbH&Co KG

pp. Manfred Sommer

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Manufacturer's certificate according to the 1st BImSchV [Germany]

We, Viessmann Werke GmbH&Co KG, D-35107 Allendorf, confirm that the product **Vitodens 333-F** complies with the NO_x limits specified by the 1st BImSchV paragraph 7 (2) [Germany].

Allendorf, 12.01.07

Viessmann Werke GmbH&Co KG

pp. Manfred Sommer

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Applicability

Compact gas fired condensing boiler

Type WS3C	from serial no.
3.8 to 13 kW	7246 897 ...
3.8 to 19 kW	7246 898 ...
5.2 to 26 kW	7246 899 ...

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